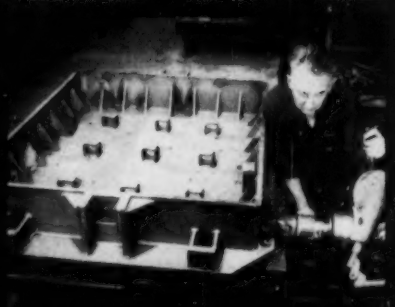
MAY
1953

# DIGEST



U.S. FOREIGN TRADE policy may undergo radical changes in the next few months. Reason: the Bell report . . p 11

ASIA'S EVOLUTION has reached a turning point in India and Pakistan. Plans are laid for better living, but there must be cooperation . . . . . p 13

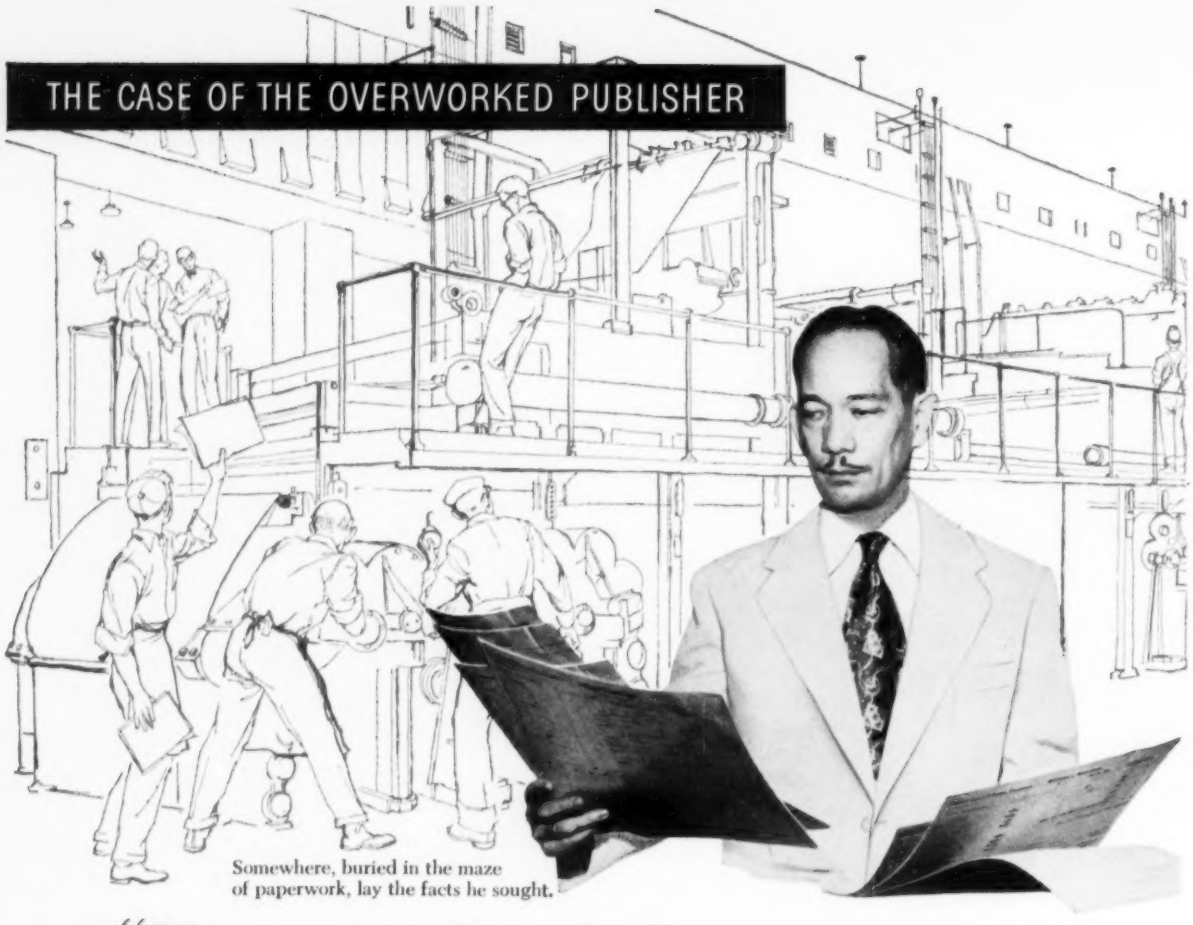
PLASTIC TOOLING is worth looking into if your production runs are short and you want a cheaper, faster way to make your dies . . . . . p 20

PAPER on a global scale — an unusual company supplies everything for setting up your paper mill . . . . . p 26

ALLIS-CHALMERS' president Roberts: "We like to think of world trade as an ambassador that brings people of all countries together" . . . . . p 35

FROZEN-JUICE sales ran over $240-million last year. After a bad start, the industry is recouping . . . . . p 41

THE CASE OF THE OVERWORKED PUBLISHER



Somewhere, buried in the maze of paperwork, lay the facts he sought.

# "Facts got buried as work piled up!"

**Circulation up 68,000... advertising sales at an all-time high . . . records hopelessly confused!**

So spectacular was the post-war growth of the Manila Times, the Philippines' largest daily newspaper, that its accounts receivable more than trebled. This new volume overloaded the pre-war accounting methods. Statements went out two and three months late. Necessary facts were buried in a maze of paperwork.

Mr. Joaquin P. Roces, Publisher, saw the danger of the situation. For counsel on the latest systems and machines that speed business record-keeping, he called the Burroughs man.

The Burroughs man reviewed the facts, then outlined a system that made it possible to separate accounts by departments . . . and, at the same time, to accumulate a total for each account. He further suggested a Burroughs Typewriter Accounting Machine for the job.

**Result?** "Since the machine was installed, all our records are consistently up to date and in balance. We are able to provide a daily control that gives the status of every phase of our business, any time. And although overall volume has increased another 75%, work peaks are levelled and we send out customer statements on time every month."

***What about you?*** If new business is overloading your accounting, call the Burroughs man. He represents the world's broadest line of modern machines for business record-keeping: Adding, Calculating, Accounting, Billing, Statistical, Cash Registers.

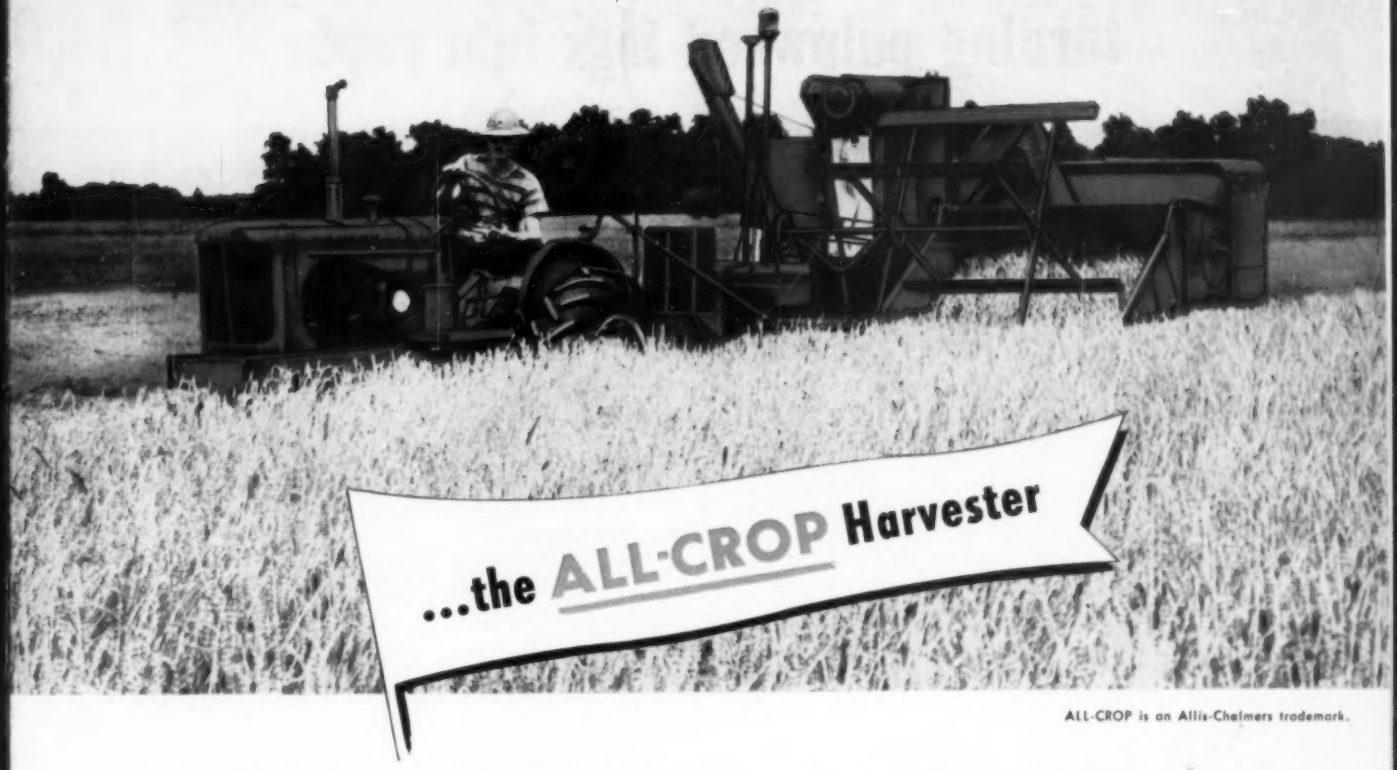
To better *your* business, call the Burroughs man—today! There are Sales and Service Offices in cities around the world. Burroughs Adding Machine Company, Detroit 32, Michigan, U.S.A.

***FOR EXPERT ADVICE IN ANY FIELD OF BUSINESS FIGURES...***

MR. BENJAMIN TICZON, Chief Accountant of The Manila Times Publishing Company, publisher of the Manila Times, inspects with satisfaction his company's latest Burroughs Typewriter Accounting Machine. With him, on the right, is Cesario Uy, the Burroughs man who helped solve the Case of the Overworked Publisher!

CALL THE Burroughs MAN

# ONE MACHINE FOR 100 DIFFERENT CROPS




ALL-CROP is an Allis-Chalmers trademark.

The All-Crop harvester, built by Allis-Chalmers, is the world's most popular machine for harvesting cereal grains, beans and seeds. It is low in cost, and its ability to harvest a great variety of crops maturing at different times of the year increases its value to the owner.

In a single operation, the All-Crop harvester cuts, threshes and cleans the grain or seed. Only one or two men are needed to operate the machine. Labor costs are reduced and the harvest is completed quickly.

The All-Crop harvester has many outstanding mechanical features. For example, the bars of the threshing cylinder are surfaced with resilient rubber. This protects the quality of beans and other seeds which are easily injured.

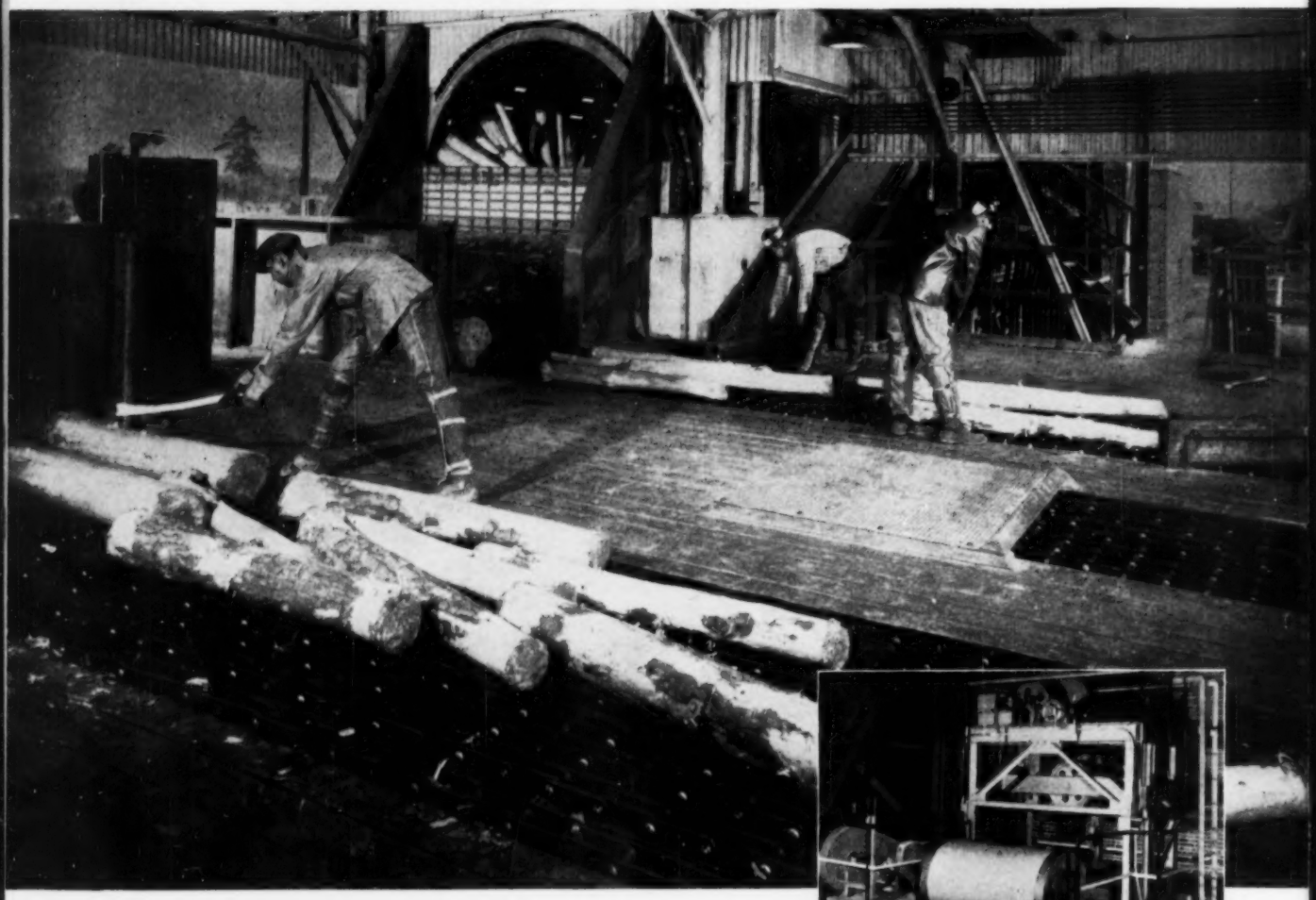
This versatile machine has successfully harvested more than 100 different kinds of crops. Hundreds of thousands are in use throughout the world. Consult the Allis-Chalmers distributor in your area for further information.

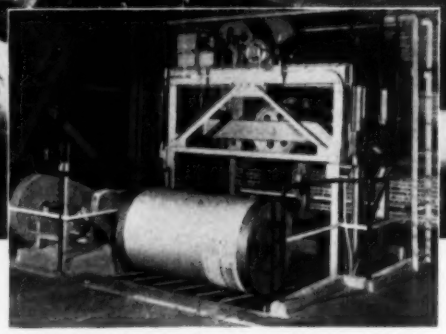
BUILDERS OF MACHINERY SINCE 1847

ALLIS-CHALMERS
Dept. MH553 — Tractor Division — Milwaukee 1, U. S. A.

*LINK-BELT research and engineering . . . Working for Industry*

# Complex conversion job-- turning pulpwood logs into paper





Link-Belt equipment for pulp and paper mills includes: chains and sprockets, conveyors, elevators, feeders, screens, cranes and power transmission machinery. Lower photo shows Link-Belt paper roll lowerer delivering newsprint to storage or shipping floor. 12,872-C

## LINK-BELT conveyors help boost production, reduce costs every step of the way in modern paper-making

THIS new paper mill uses scores of Link-Belt conveyors, feeders, and elevators. Logs, chips, pulp, and finally rolls of paper require continuous, high-speed handling. Coordinated with them must be coal, sulphur, limestone, hot lime, and salt cake.

For every step, Link-Belt supplies conveyors and power transmission equipment to this and other leading paper mills. And the majority of the country's high-speed, high-horsepower printing presses are driven through Link-Belt Silent Chain.

It's the same story in industry after industry — Link-Belt research and engineering are making valuable contributions to increased production . . . lower cost. Truly Link-Belt's materials handling and power transmission products are the muscles of mass production.

LINK-BELT

**LINK-BELT COMPANY:** Engineers • Manufacturers • Exporters of Machinery for Conveying Materials and Transmitting Power • Established 1875.

**EXPORT DIVISION:** 2680 Woolworth Bldg., New York 7, U.S.A. • Cable Address: Linkbelt—New York. Representatives listed on opposite page.

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**Australia**—Link-Belt Company Pty. Ltd., Sydney • Malleable Castings Pty. Limited, Morrickville
**Belgium, Luxemburg & Belgian Congo**—Fabricom, S.A., Brussels
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**France**—C. Comiot, Paris
**Greece**—Hellenic Tech. Supply Co., Athens
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# McGRAW-HILL DIGEST

*. . . the best from 52 business magazines—see p52*

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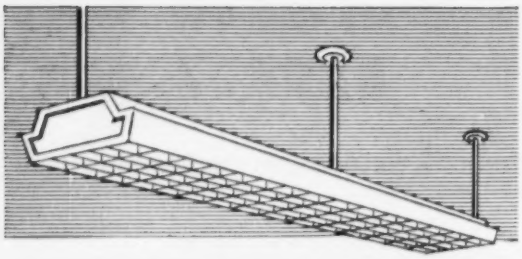

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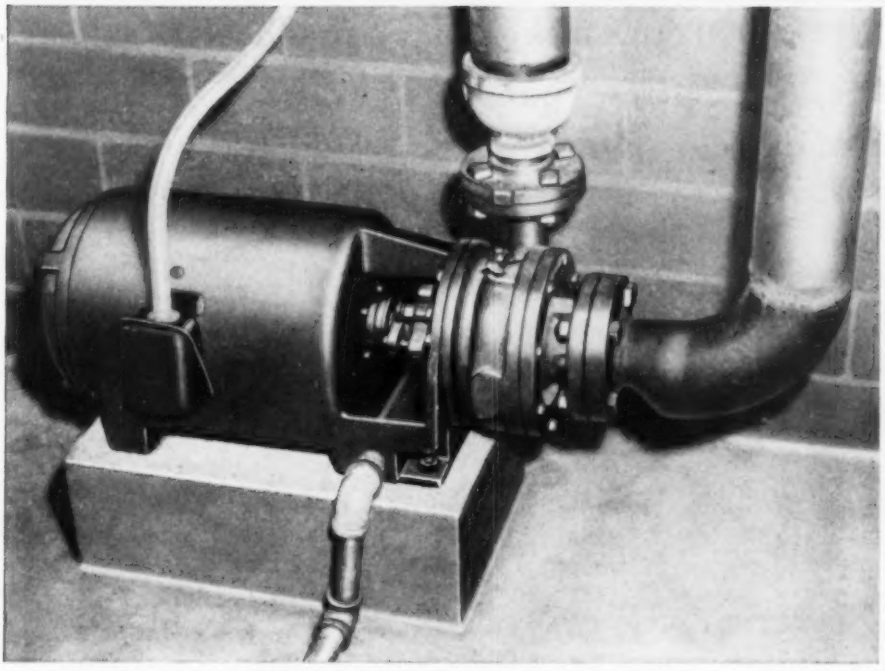

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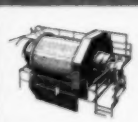
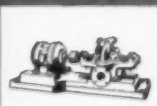


Equipment for Ore and Rock Processing



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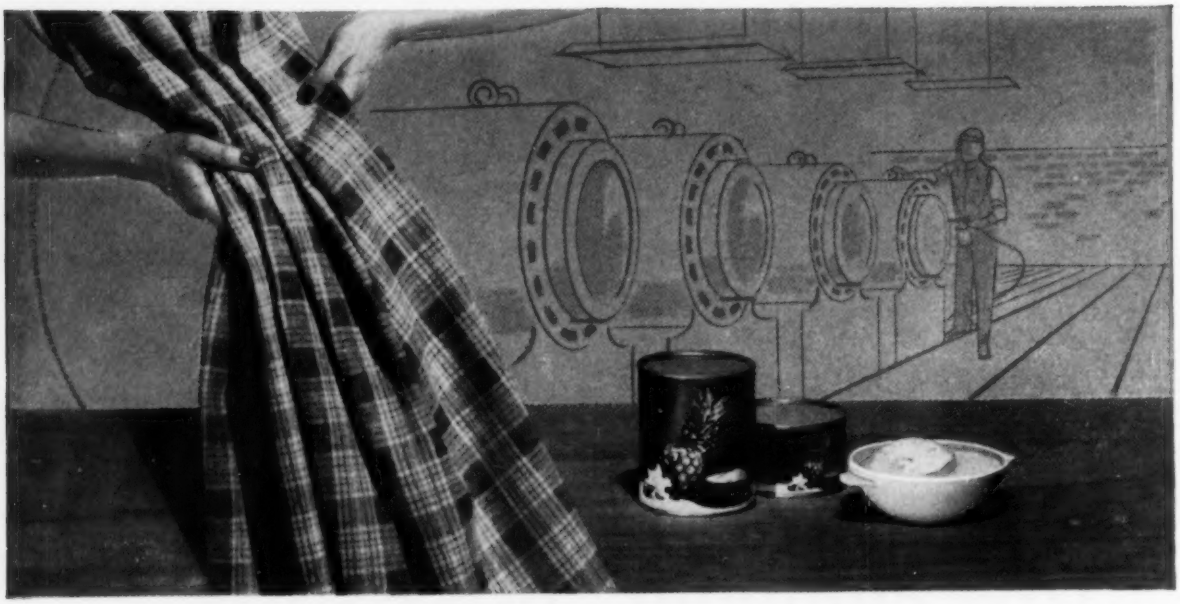

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# BUSINESS TRENDS

**U. S. ECONOMY** will be strengthened as a result of the new Russian regime. Increased international tension and stepped-up armament efforts mean few expenditures can be trimmed.

**Defense spending will be stretched out further.** As a result, consumer purchasing power will climb. Record employment and growing population are also vital factors contributing to the increased buying. More automobiles, domestic appliances, and homes will be sold.

**Gross national product** (total output of goods and services) hit a new mark of $346-billion last year. It will be up another 3% in 1953. Personal income increased 5½% to $268.5-billion. The tremendous impact of defense program will ensure another income record this year.

**Steel production for the first quarter** set a new tonnage figure. The letdown in steel-mill operations expected later in the year will now be delayed. Construction expenditures are well above the 1952 average rate.

**New orders are increasing.** Backlogs are declining because of the fast production pace. But they are still above normal. Installment sales have been running as high as 30% above a year ago.

**Retail sales for this year** have gained 8% over a similar period in 1952. The upward trend should continue. Inventories, after rising in the fourth quarter of 1952, fell in the early part of this year. But once again, an inventory increase can be expected.

**Ending of price controls** has had relatively little effect on the economy. Costs of a few scattered commodities jumped. Selective price rises will continue temporarily for strategic items and raw materials in short supply.

**U. S. GOVERNMENT** is pressing for renewal of the International Wheat Agreement at a higher price. The present pact sets a top price of $1.80 per bushel. Wheat importing nations are willing to pay more. U. S. originally was seeking a rate of $2.50 but would be satisfied with a rate about $2.20 because of heavy surpluses.

**Since the agreement was signed in 1948,** U. S. taxpayers have paid out $600-million because the government guarantees the farmer a price of $2.20 and bears the loss. The new administration wants to stop this subsidy by a higher price.

**World wheat supplies are improving rapidly.** So the U. S. will be compelled to compromise. Canada has a sizeable surplus. Argentina has one of the best crops in history. And Western European harvests are up. England, the leading opponent of price increase, will yield in the end as she counts on other concessions later to offset the U. S. request.

**EUROPEAN PAYMENTS UNION** will undergo a complete overhauling. Britain's decision to participate for another year will force several changes in future operations.

**In the last fiscal year,** EPU ran into considerable difficulty. France experienced severe losses in gold. To stop trade deficits with the union, she inaugurated a system of commodity arbitrage. Importers were permitted to buy dollar-area goods for resale to member nations.

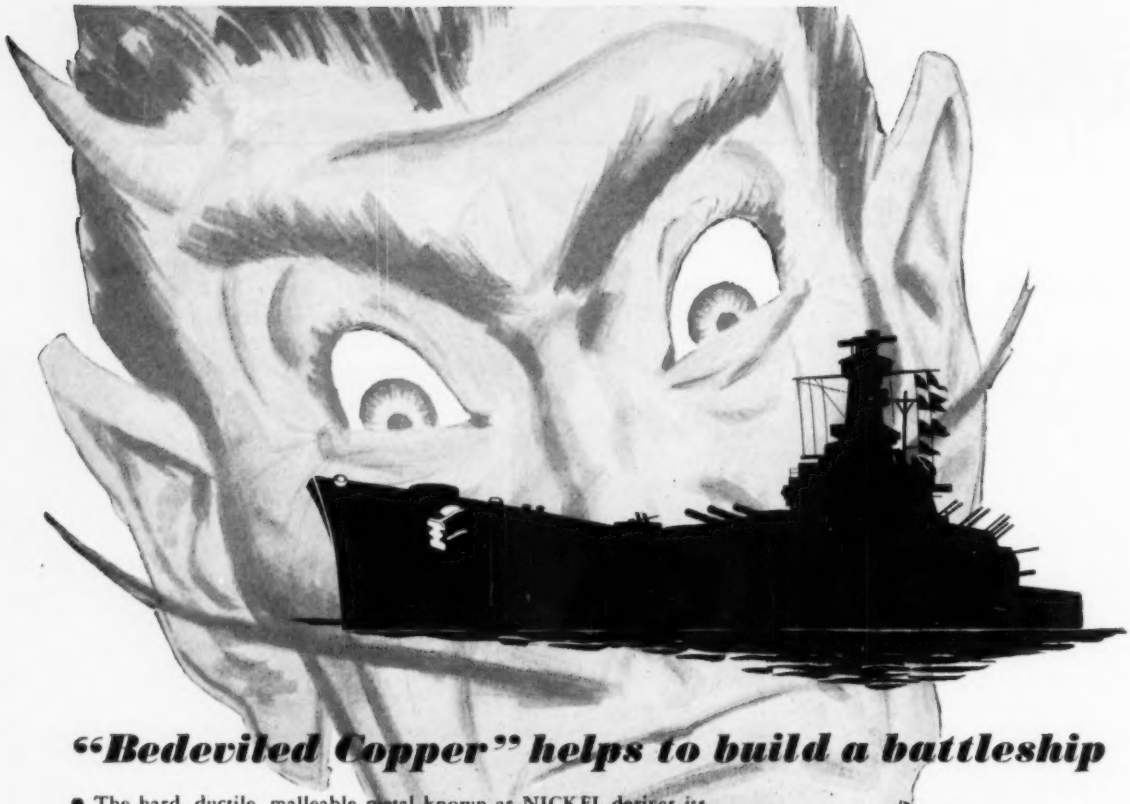
**Turkey developed into another problem country.** She too exceeded her credit quota and had to rely on temporary loans. Germany, after accumulating huge surpluses, was forced to increase her imports from member nations. Holland, who likewise built up heavy credit balances, was turned down when she attempted to expand her maximum lending facilities.

**EPU's credit mechanism will be tightened.** Debtor nations will have to pay more gold to settle their deficits. The U. S., however, will not make another contribution. This country launched EPU with $350-million and was later called on to give another $11.4-million for working capital.

**The British will seek a wider system** of multi-lateral trade and payments. They will use the union as a springboard for eventual convertibility of sterling. England plans to let Western European countries buy more products with pounds—lead, zinc, tin, copper, aluminum, rubber, coffee, cocoa, wool, and furs. Sterling holders will be able to get a substantial share of dollar needs in London's private commodity markets.

**A United Nations' proposal** recommending that EPU be expanded to include Latin America will make little headway in 1953. But the union is trying to break the trade bottleneck between Western Europe and South America.

**More flexible payments' arrangements** are on the way. Commodity agreements on coffee, sugar, cotton, linseed oil, wool, meat, textile machinery, and tractors will be devised. Increased Latin American production and diversion of European exports from consumer items to capital goods are the eventual targets.



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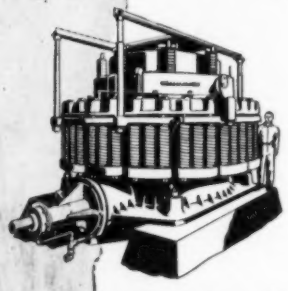

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# WASHINGTON REPORT

**THE ADMINISTRATION** has started working out a new foreign economic policy. Lewis Douglas, former ambassador to Britain, has been given the job. He will head a committee to study all aspects of U. S. foreign economic relations and come up with an integrated policy. Springboard for the study will be the recent Bell Report (p11).

**But the Douglas committee will take months** to forge a new policy. Meanwhile, Rep. Richard Simpson of the House Ways and Means Committee already has introduced a new reciprocal trade bill without waiting for a White House bill.

**Hearings have been scheduled on the bill.** It would raise formidable new barriers to imports. Escape clause recommendations by Tariff Commission would have to be carried out by the President.

**That would mean higher tariffs and quotas** every time the Tariff Commission found any domestic industry had been injured by imports—regardless of any national interest or cold war considerations.

**The President can disregard** Tariff Commission escape clause recommendations under the present law. President Truman did so in several cases. President Eisenhower refused to go along with a commission recommendation for higher duties on imported briar pipes.

**Simpson's proposed bill** would also place rigid quotas on imports of petroleum and petroleum products. This reflects a current all out campaign by domestic oil producers, particularly independents, to win more protection from imports. Producers claim imports of oil and oil products have doubled since 1947, are pushing the 1-billion barrel mark. Oil prices have been held steady by imports; labor and drilling costs have climbed 50%.

**Coal operators have joined** domestic petroleum producers in fighting for restrictions on oil imports. They have succeeded in introducing more than twenty bills in Congress which would limit imports to 5% of domestic consumption.

**The protectionist offensive** also has gotten underway in the field of metals. Western mining state congressmen are hard at work drafting a bill for a sliding tariff on lead and zinc, perhaps other metals. Plans now call for setting a base price on the metals. Every time prices dropped below the base price, tariffs would rise an equivalent amount.

**This device was attacked in the Bell Report** on the grounds that it would produce serious instability in world markets of commodities for which the U. S. is heavily dependent upon foreign sources. The administration and the Congress could get into a real fight over this issue.

**Protectionist congressmen have a potential ally** inside the administration. Secretary of Commerce Sinclair Weeks considers himself the champion of the one industry towns which might be hurt by foreign competition. He is searching for a tariff formula of his own which somehow would neutralize differences in U. S. and foreign wages.

**But Secretary Weeks will move cautiously.** He feels isolated right now in a predominantly free trading administration. And he is anxious not to shake administration unity on the trade issue.

**Still he is bound to exercise a conservative influence** on the administration's foreign economic policy. He will work hard for a compromise between free traders in the administration and protectionists in Congress.

**His key argument will be** that the U. S. should postpone further tariff cuts until it is clear how much U. S. industry has been hurt by cuts already made under reciprocal trade agreements. He contends that the agreements never have been tested in a normal market. The depression, the war, and the postwar inflation disguised the degree to which the U. S. economy had been exposed to foreign competition.

**Add up the forces pulling and pushing** on U. S. foreign economic policy and you get this forecast: the administration wants a more liberal policy. It is planning a broad, long range attack on U. S. trade barriers. But protectionists in Congress will score some solid tactical victories before the administration has time to launch its offensive.

**More new individual tariff boosts this year** could hit the administration's new Latin American policy a body blow before it even gets fairly started. Coffee, oil, wool, and non-ferrous metals mined in the U. S., all are vulnerable to tariff action. Oil and wool imports already are under attack in Congress.

**Yet exports of these commodities to the U. S.** are the key to Latin American prosperity. And Washington is convinced that the one thing that would really strain U. S.-Latin American relations to the breaking point would be an economic slump there.

**The new administration is very worried** about communist infiltration in Guatemala and Boliva. It fears a dip in prosperity would spread the communist virus fast.

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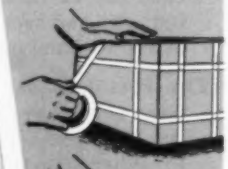

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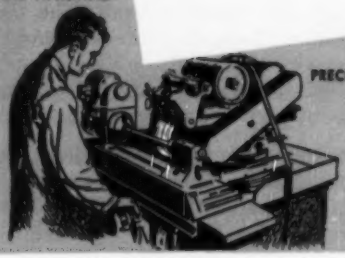

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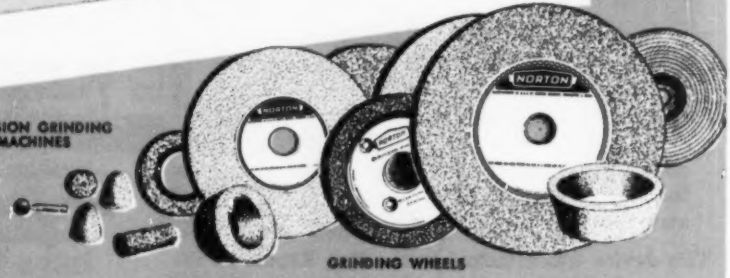


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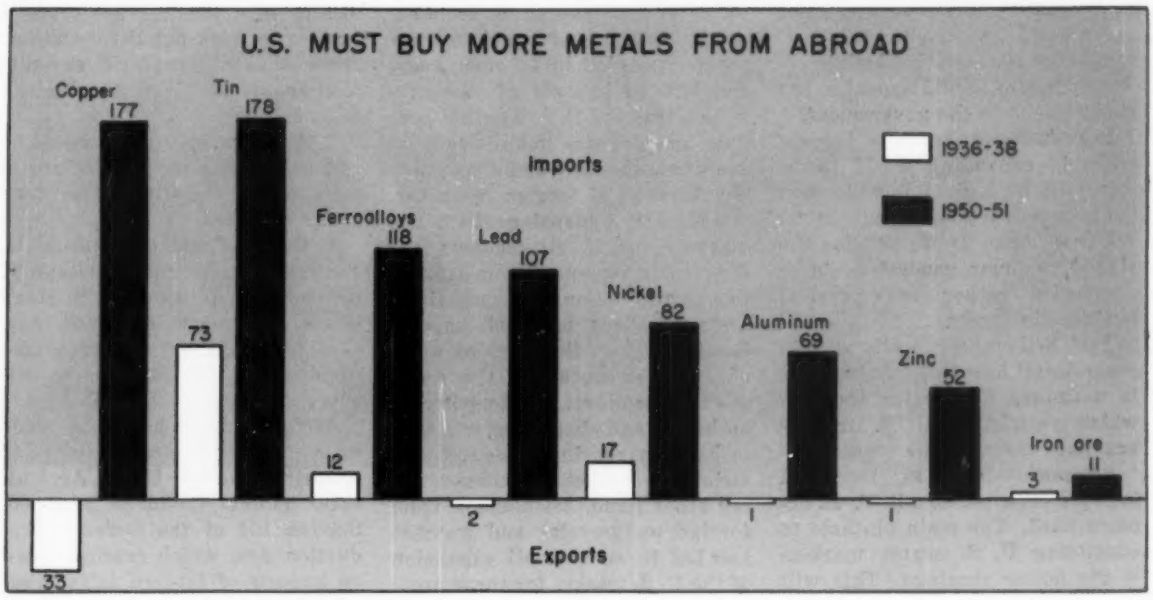



*Bell Report on Policy Advises . . .*

# More U. S. Trade with World

**Businessmen the world over are affected by U.S. foreign-trade policies and many look to the U.S. as a market for their goods. The Bell report gives you an idea of what to expect—an original Digest article**

FREE-WORLD LEADERS are filing to the White House, trying to find out what the new administration is going to do about its foreign-trade policy. None of the visitors has had any answers yet because President Eisenhower and his aides have not had time to look at the problems, let alone come up with solutions.

**But the administration** has been forced to start doing its homework on balance of payments, exports, imports, tariffs, and so forth. It should be ready for serious trade talks with allied governments in a few months.

A lot of homework fortunately was done for the Eisenhower team in advance. President Eisenhower recently received probably the most comprehensive report on U.S. trade and tariff policy that ever has been made. It was done by the Public Advisory Board for Mutual Security under the chairmanship of banker Daniel Bell at former President Truman's request.

**Eisenhower inherited** the report. But it is relatively free from the taint of politics as the board is composed of a cross-section of private citizens drawn from business, labor, agriculture, and the public at large.

It looks now as though the Bell report will become the basic handbook for any redrafting of U.S. trade policy. It recommends starting with a brand new trade and tariff policy in the national interest.

**The proposed policy** would reduce U.S. protective trade barriers drastically. Some members of the new administration would like to try to push it through Congress virtually unchanged. Others are more cautious, others frankly hostile. It is too early to say where the line will be drawn.

**The report** takes a new approach to U.S. trade barriers, basing its recommendations primarily on the harm that specific trade barriers do to the U.S. economy as a whole. It discusses the international implications of U.S. trade practices. But the main emphasis is on how certain tariffs, customs' rules, subsidies, government procurement policies, etc. hurt major sections of the American economy.

This approach is more likely to

## *"A new tariff act should be adopted to reduce duties . . ."*

carry weight with the more nationalist-minded Republican regime than the internationalist arguments for freer trade advanced by Democratic administrations. It also should appeal to the businessmen in the government.

**Big business** has the biggest stake in expanding world trade. It would be logical for the first businessman's government in 20 years to adopt trade policies designed to favor general business prosperity rather than special business interests.

The Bell report spells out in great detail how this can be done. It examines five major ways in which restrictive U. S. trading practices threaten the economy.

• **Exports**—Bars to increased imports threaten to hit U. S. exports hard. The main obstacle to expanding U. S. export markets is the dollar shortage. This will become higher and higher as foreign aid declines unless U. S. imports of goods and services are sharply increased.

The Bell report states flatly that the future expansion of the U. S. domestic economy depends on large-scale growth of foreign markets and sources of supply. It backs up the point with statistics on the dependence of U. S. agriculture and industry on foreign sales.

**Percentages** of total production of key commodities exported are 39% for rice, cotton 38%, wheat and flour 37%, grain sorghum 31%, tobacco 26%, soybeans and products 20%, textile machinery 25%, machine tools 22%, tractors 21%, printing machinery 19%, oil-field machinery 16%, diesel engines 13%, trucks 11%, agricultural machinery 11%.

These percentages have been attained, and maintained, since the war by $40-billion worth of U. S. foreign aid plus virtual exhaustion of foreign dollars reserves. Only increased imports can keep U. S. foreign sales up long term.

• **U. S. Resources**—Restrictions on imports of raw materials tend to exhaust domestic resources. They increase industrial costs and deprive the U. S. of foreign sources of materials that are certain to be needed by the U. S. economy in the future and could be desperately needed in an emergency. Barriers to imports of raw materials that the U. S. does not produce in adequate quantities hurt the whole economy and discourage development of foreign resources.

• **Market Expansion**—Domestic markets for U. S. products are frequently prevented from expanding by restrictions on competitive imports. Bars to wool imports have forced up the price of woolens and strengthened the trend towards synthetics. Restrictions on butter and cheese imports tend to boost margarine sales and constrict the market for cheese. On the other hand, competition from foreign motorcycles and watches has led to an over-all expansion of the U. S. market for these products and has boosted domestic producers' sales.

• **Government Cost**—Finally, some U. S. trade barriers increase the cost of government. Increased foreign-aid requirements resulting from inadequate trade is one obvious example. But "Buy American" legislation, which forces federal and local governments to buy preferentially from domestic producers, also costs the taxpayer money—hundreds of millions of dollars a year.

• **The Cold War**—Failure to adjust U. S. trade policy to modern conditions, the Bell report warned, could also lose the cold war for the U. S. It inevitably would split the free world into competing dollar and non-dollar economic blocks. Both blocks would be weakened.

The report spelled out a ten-point policy for boosting imports:

1. **U. S. trade policy** must be based on the national interest as a whole, not the interests of individual industries. Trade barriers should not be raised to shelter industries threatened by imports. Instead, the government should help them retrain workers, boost unemployment insurance, diversify production, convert to other lines.

2. **A new tariff act** should be adopted to reduce duties and consolidate tariff rates. Congress should give the President broad powers to work out the details of the new law. The tariff commission should be given a secondary technical role.

3. **The administration** should be authorized to negotiate reciprocal tariff reductions without any time limits attached.

4. **Customs' red tape** should be hacked away by quick passage of a customs simplification bill. Many goods, the report observed, now take longer to pass through customs than Columbus took to discover America.

5. **Tariff cuts** should be made on goods not produced in sufficient quantities in the U. S. Agricultural quotas should be loosened. Section 104 of the Defense Production Act, which cracked down on imports of foreign dairy products, should be repealed.

6. **Tariffs** should be scrapped or reduced on metals and minerals supplied largely from foreign sources. Special purchases or contracts should be used to spur domestic production if needed for defense.

7. **Import excise taxes** on petroleum products should be dropped. Other measures should be employed to stimulate domestic exploration and development necessary for defense.

8. **Rules requiring 50%** of U. S. aid and loan shipments to be carried in U. S. bottoms should be waived for countries allowing U. S. shippers to compete on an equal basis with their own.

9. **Procurement policies** of the U. S. should be overhauled. Repeal of "Buy American" legislation should be considered.

10. **U. S. participation** in a permanent international trade organization should be legalized.

Carrying out these recommendations would increase U. S. imports between $700-million and a billion dollars a year, the study estimated. The increase in agricultural imports would be about $200- to $300-million per year, in manufactured goods about $500- to $700-million per year.

INDIA's Prime Minister Jawaharlal Nehru and . . .

PAKISTAN's Prime Minister Nazimuddin should weigh . . .

# Cooperation in South Asia

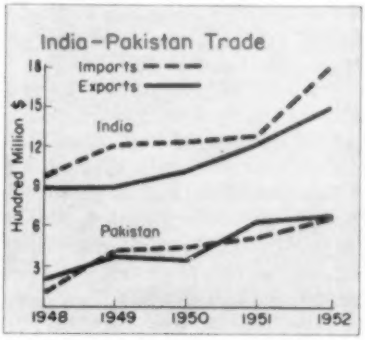
**Both India and Pakistan, striving to fill the demands of their people, would benefit from a harmonized economy through cooperation—an original Digest article**

BOMBAY—Asia's Twentieth-Century evolution from a primitive to a modern economy has reached in India and Pakistan its most critical phase. In the 5 years since these two members of the British Commonwealth became independent, they have fixed goals, drawn blueprints, and laid foundations. Now they have to build, and they must build well, if south Asia is to be saved for democracy.

**The pressure of communism** from both within and without gives them another 5 years, or perhaps even 10 years, to put their economies on a basis that will be reflected in the improved living standards that their awakened peoples are now demanding. Their achievements so far give grounds for optimism, but their present rate of progress is slow.

Industrial production in both countries, aided by their tariff policies, has risen steadily. Key Indian industries, such as coal, steel, cement, and fertilizer, had a record year in 1952. Cotton and jute production, the mainstay of both countries' export trade, has been doubled since 1948. Prices and cost of living, after a 5-year inflationary upward trend, are levelling off.

**The sub-continent's** No. 1 problem, food, remains much as before. In India, thanks in part to the 1952 loan of 2-million tons of wheat from the United States, supplies are adequate at the moment, but the country is still unable to grow more than 85% of its needs (about 60-million tons annually). Even Pakistan has had to import supplies recently.



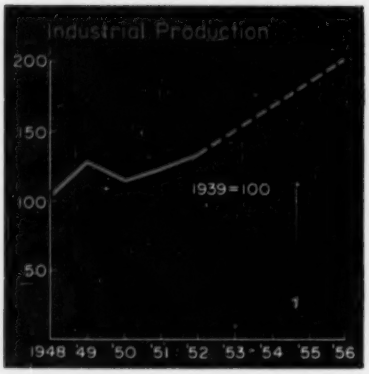

The need for buying food abroad is a major hindrance to Indian national development. And it is aggravated by the constantly increasing population.

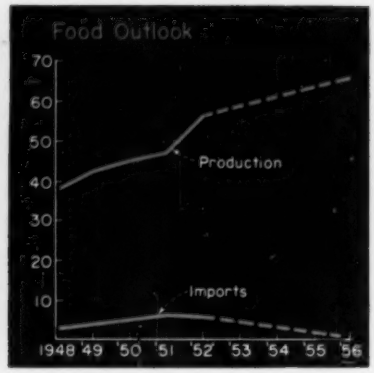
**For these reasons,** both food self-sufficiency and family planning figure prominently in India's First 5-Year Plan. Its publication last month in its final form marks in India the end of the blueprint phase of national development.

Into this $4½-billion program, which has been running for 2 years, have gone 3 years of effort by the country's leading technical and economic experts. Premier Nehru and his Congress Party are staking their entire political destiny on its success or failure.

**Aiming at an 11% increase** in national income by 1956, the plan

## These Are 1956 Targets in India's 5-Year Plan



schedules more than a billion dollars for agricultural development and irrigation and another half billion for multi-purpose river projects that will produce both power and irrigation. This, the Indian leaders reckon, will boost food production to 62-million tons by the end of the 5-year period.

But throughout this hopeful budgeting for expansion, in Pakistan as well as India, runs always an uneasy undertone: "Where do we get the money?" Echo frequently answers, "Foreign aid."

**The Indian 5-Year Plan,** for example, modest though it is in relation to India's under-development, needs $1,350-million more than would be normally available. India is prepared to meet $600-million of this shortage by deficit financing and already has embarked on this in the 1953-54 budget, announced on Feb 27.

For the remaining $750-million, India looks to "external assistance" or, failing that, to borrowing, increased taxation, or more deficit financing. The outlook for more income from any of these sources is not encouraging.

• **Deficit Financing**—The creation of new money beyond $600-million would push prices beyond the reach of Indian consumers.

• **Increased Taxation**—Although taxes form only 7% of India's national income, about one-half of the taxes is paid in the form of direct taxation and customs duties by 0.5% of the population. Scope for increase is therefore small. The average annual income per capita for 1952 was $54.

• **Borrowing**—The World Bank has loaned India $117-million for six different projects in the last 3½ years. (Pakistan last year received two loans totalling $30,450,000 for railroad rehabilitation and agricultural development.) The U.S. wheat loan to India ($190-million) is the other main item under this head.

• **Foreign Aid**—The total so far (through June 1953) is:

| | |
|---|---|
| U.S. Point Four | $98,200,000 |
| Colombo Plan | 38,400,000 |
| Ford Foundation | 1,200,000 |
| Norway | 200,000 |

The Indian planners scanning these figures anxiously see only faint prospects of paying for their 5-Year Plan in full. This is serious, because the plan consists of minimum objectives. Partial success would be failure.

**Nowhere is the paucity** of resources more evident than in the great river-harnessing program, which is the key to both increased food production and more power for industry. Of the 110 dams to be finished by 1956, about seven are major projects, including what will be the world's highest (Bhakra) and the world's longest (Hirakud). Expert technical opinion is that these projects are well conceived but that the target dates have little hope of fulfillment.

The rate of expenditure on the plan during its first 2 years, about $1¼-billion out of the total $4¼-billion, also indicates that outlay is behind schedule. The tempo of investment during the next 3 years may be increased by ploughing back corporate profits and by extending State trading.

**Many Indian eyes** turn inevitably to the U.S. for a solution. For a time last year, Indians felt they had a chance of receiving $600-million worth of aid over a 4-year period through the intervention of former U.S. Ambassador Chester W. Bowles. Mr. Bowles has consistently supported the "aid-without-strings" principle, which would help India irrespective of its neutralism in the cold war and of the best interests of the U.S.

With Mr. Bowles may go Indian hopes of a one-sided Point-Four answer to financing their 5-Year Plan. This possibility, combined with Indian dismay at the new realistic U.S. foreign policy in Asia, has cast a shadow over Indo-American relations.

**One means,** however, of American participation in Indian economy toward which Indians are looking with increased expectation is private capital. Standard Vacuum Oil Co. is going ahead fast with the construction of its $30-million oil refinery near Bombay and is seeking permission for a big prospecting program in northeast India. California Texas Oil Co. plans to build a refinery.

If in oil, ask the Indians hopefully, why not in other industries also? Foreign capital is officially welcome in India and will receive guarantees against expropriation. Repatriation of both capital and profits will be allowed.

**The 5-Year Plan** points up this need by budgeting about $975-million for industrial expansion, at least $200-million of which is expected to come from foreign investment. The major industrial

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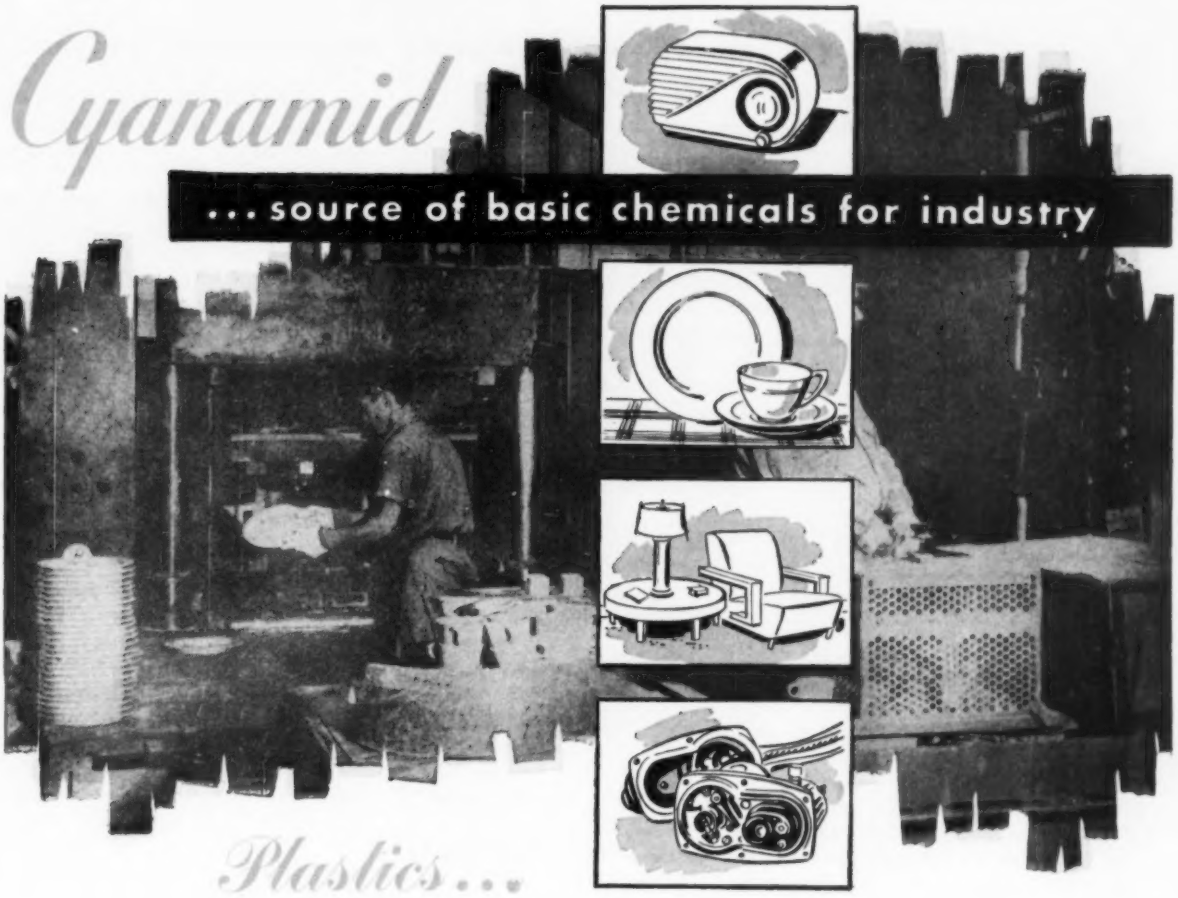

Plastics ...

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project is to be a $160-million steel plant. The World Bank and Koppers, Inc., are collaborating with the Indian Government.

New private foreign investment in India from 1948 to 1952 was announced recently as:

| | |
|---|---|
| Britain | $49,000,000 |
| United States | 6,500,000 |
| Switzerland | 1,400,000 |
| Canada | 350,000 |
| Others | 2,850,000 |

**These figures** compare with total Indian private investment during the same period of $800-million. Some Indians and Pakistanis feel that the scale of American business overseas will increase under the Eisenhower administration, but the fact that India and Pakistan are considered less sound political risks than some other areas is frequently overlooked in those countries.

India's partiality for state enterprise, of which the nationalizing of civil aviation is a current example, is another factor adverse to private investment. The Indian aim is a mixed economy and a welfare state. Four-ninths of all enterprise is now state-owned. In this respect, and also from a political point of view, Pakistan is sometimes considered the better field of operation.

**Although Pakistan** has no 5-year plan to finance, its economic situation is at the moment much graver than that of India. Imports are almost suspended, except for essentials, in an attempt to maintain the over-valued Pakistani rupee. Railway sidings in Karachi stacked high with unsold cotton, and in Chittagong with unsold jute, tell of a mounting economic crisis.

Jute alone can explain much of the accumulated economic difficulties of the whole area. Ever since 1947, when partition left the jute-growing areas in East Pakistan and the jute mills in Calcutta, India and Pakistan have engaged in a mutual boycott, deadly in its economic results. But under terms of the trade conference held in March, Pakistan removed the license fee on jute for India.

**To avoid paying** Pakistani prices for raw jute, India had sacrificed food-crop land to grow the jute it needs (4,800,000 bales in 1952). Meanwhile, Pakistan is building jute mills of its own (annual capacity 900,000 bales) to grab for itself some of the important burlap export market.

Jute goods bring India 66% of its export revenue, and most of it is dollar exchange. But while Pakistan and India have competed instead of cooperated with each other in the jute trade, the world demand for jute goods has declined and both are losing revenue.

**The political schism** of the subcontinent has caused, in general, a crazy trade pattern that neither India nor Pakistan can afford to maintain indefinitely. Indian coal, for example, is being sold in Europe, while Pakistan is buying coal from Europe. The March trade conference provided also for lower prices on Indian coal for Pakistan.

India imports a million bales of cotton each year from the U. S., Egypt, or East Africa; Pakistan exports its cotton (which India could use) to Communist China and Japan among others. Japan, in its turn, sells textiles to Pakistan and other Asian countries, and has ousted India from its position as Asia's leading cloth supplier.

**Another side** of this picture is the heavy expenditure by both countries on defense, primarily against each other. In 1952-53, Pakistan devoted 59% of its national budget to defense. In the same year, its cash balance, which opened in March 1952 at $275-million, had dwindled by March 1953 to an estimated $80-million. India's 1953–54 budget provides for outlay of more than $400-million on defense services out of its $900-million total.

**Foreign observers** in south Asia feel that a harmonized economy between the two countries, to increase the trading surplus for both and thus enable them to buy more capital goods for industrialization, is a forward step which neither can afford to neglect. But this promised economic gain has not yet proved a solvent for political pride. It looks as though India and Pakistan will continue for another 5 years to seek the economic cooperation of the rest of the world but largely to ignore that of each other.

## New Sea Creature Keeps You Warm and Dry

**Latest refinement in sea rescue is B. F. Goodrich Co.'s inflatable rubber lifeboat with built-in canopy. Thrown overboard or dropped by plane the raft all but comes to life. It breaks out of its carrying case, balloons into shape, raises its own insulated canopy, drops its nylon boarding ladder into the water, and, as a final flourish, sets out its own sea anchor. Fifteen men huddled inside the canopy can maintain a 70° temp. in cold weather; in tropical climes the canopy protects survivors from beating sun. Every thing for survival is packed snugly inside.—Marine Eng, Mar, p144**

## Radiation, Quick Freezing Can Curb Trichinosis

Two new means of controlling Trichinella spiralis, the cause of trichinosis, have been reported. One involves treatment of the pork with ionizing radiation, such as X-rays, gamma rays, and high-energy electrons. The other utilizes quick freezing.

**Tests revealed** radiation doses less than what is needed to kill will stop growth of larvae. Even smaller doses sterilize female trichinae.

The freeze method calls for rapidly dropping pork temperature to −35° C. for a short time, or holding the meat at −18° C. for 3 days.

U. S. figures put the number of infected hogs at 950,000 of the 60-million slaughtered annually.—Food Eng, Mar, p192

## World Motor Census

World total of cars, trucks, and buses in operation has set a new record. January 1, 1953 figures show 76,135,329 units in use, a rise of 4.5% over the past year, according to the annual *American Automobile (Overseas Edition)* Motor Census.

**Excluding the U. S.** from the figures shows that operation in the rest of the world hit a healthy 9.8% increase, with 20,695,909 vehicles now on the roads.

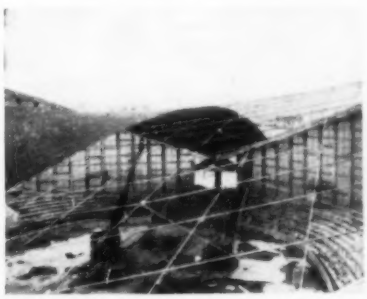
The census emphasizes that these figures are probably low because they do not include all military vehicles or unregistered vehicles operating on small islands all over the world.

**Modest but steady gains** in all countries were overshadowed by a 43.0% gain in vehicles operating in Asia. The census says Asia's total in past years was understated, but the rise from 1,138,680 to 1,625,273 vehicles puts it ahead of Africa in number of cars, trucks, and buses running.

Breaking down the figures, the census reports that world totals are now: automobiles—57,910,214, up 4.38%; trucks—17,561,819, up 4.87%; buses—602,983, up 9.38%.

**Reprints** of the 23-page Census with large colored map and charts are free and available.—Am. Auto, Apr, p33

**NEW PAVILION at North Carolina State Fair has saddle-shape roof hung from center arches. There are no columns to support roof.**



**CABLES hold roof and are stretched from the tops of arches.**

**ROOF is laid on from underneath, then fastened to cables.**

# New in Construction

### Curved arches add more than beauty to novel design; roof hangs from arches on cables. Thus, no columns obstruct spectators' view of arena

LATEST EXPERIMENT in building engineering is the livestock judging pavilion at the North Carolina State Fair. The pavilion is roughly 300 ft. in dia., but not one single column supporting the roof breaks this area. As a result, any seat in the stands gives an unobstructed view of the judging floor.

• **How It Was Done**—To construct the new pavilion, two large concrete arches were built with their axes in planes that make an angle of 22° with the ground. Connecting cables, strung from the tops of the arches, support the roof.

The arches and their abutments are designed to transmit to the ground only the roof load. Their dead weight is carried by vertical steel columns along the center line of the arch ribs. These columns also serve as mullions.

• **Designs to Come**—Design of the pavilion was carried out at the North Carolina State College School of Architecture and School of Design. Included in the school's projects are unusual designs for supporting roofs, and plans for a stadium to seat 10,000.

A new type factory is also being planned. It is a multistory building designed specifically to house a textile plant. The factory is spherical, with an elevator shaft running up the center. Raw materials are fed to the top of the sphere and processed as they flow down the eight floors to the ground level. It has been termed a "fountain" structure because the flow of materials up the center and down the outside of the dome-like building resembles the flow of water from a fountain.—Eng News-Rec, Feb 5, p31

# Biggest PUSH and PULL on earth!

This combination is world-famous for agile power and efficiency: TD-24 diesel crawler and Bucyrus-Erie 16 cu.yd.(struck) capacity scraper.

On big jobs, there has to be a tractor that's tough, powerful, versatile! The answer is an International TD-24 with 148 max. drawbar hp.—more than any other crawler. It has proved its ability to work harder, to get in and out and back in again faster.

The TD-24 has 8 forward and 8 reverse speeds, up to 7.8 mph. for faster time cycles on the job. Syncromesh shifting is "on-the-go" shifting—instant change up or down one speed without declutching. Planet Power steering gives you pivot turns, feathered turns and turns with power on both tracks.

For all the facts on the TD-24, see your International Industrial Power Distributor now.

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# This Month's How To . . .

## . . . make your plant safer

John J. Felin & Co., meat packers, have worked out a system for cutting their accident rate, and it seems to work. The plan requires nothing more than making fuller use of present employees, such as this one who suggested a common-sense safety rule for using a monorail conveyor loaded with stockingettes—"Push it, don't pull it."

Felin has set up a rotating safety committee consisting of one permanent member—the company personnel director—and nine employees.

Every 2 months the committee tours the plant and usually finds the trip worthwhile since it takes the men into departments they are unfamiliar with. They are quick to spot accident dangers that have existed so long they are not obvious.—Food Eng, Mar, p92

## . . . speed up industrial research

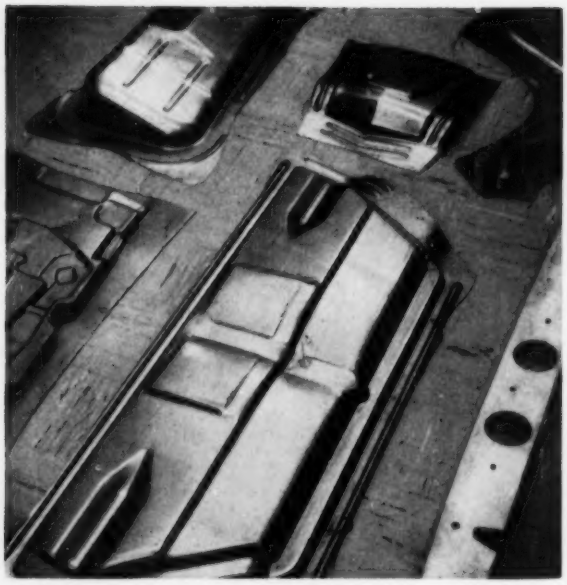
Sylvania Electric Products, Inc., reports that research on semi-conductor materials, such as germanium, has been speeded up by a radioactivity method known as activation analysis. It can measure impurities as low as 1 part in 100-million.

At Sylvania, the method is being applied to evaluate trace amounts of impurities transferred from the germanium processing container. The graphite container is subjected to nuclear radiation. As the impurities transferred to the germanium are therefore radioactive, their quantity and identity can be determined by measuring intensity and decay rate of radiation.—Prod Eng, Mar, p197

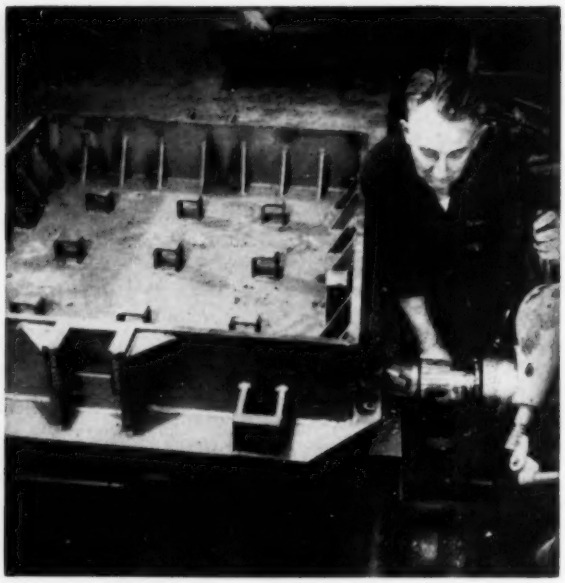
## . . . make laboratories customers

Usually the grand finale to a long, hard-selling campaign is when a distributor of technical equipment gets a nice fat order to equip a laboratory. Customers argue that the equipment is so technical that it takes trained men to operate it. And most industrial labs do not need elaborate equipment for their every-day problems.

H. M. Bedell of National Spectrographic Sales Corp. thinks he knows the formula to overcome these objections. When he sells technical equipment, he includes a consulting service that will train his customer's technicians and stand by to help. So far his system has paid off by winning friends for the company and by high sales.—Business Wk, Feb 21, p80



PLASTIC DIES made these parts— the truck cowl side panel (center), door panel (left), instrument panel (right).



BOILER-PLATE BOX to hold large plastic die is built up by welding, normalized, and then machined and painted.

# Short-Run Plastic Tooling

**Reduced tooling time, lower tooling costs, and elimination of practically all machining make plastic dies good substitutes for short-run metal dies**

SMALL SHOPS, as well as large shops, should take another close look at stamping and drawing methods where production runs of 20,000 to 50,000 pieces are required. Their managements will find that dies can be made fast and cheaply in cast plastic.

**Plastic dies,** though not intended to replace steel dies on high-production work, have been successful in aircraft and automotive industries. Their success suggests wider application in other fields—toys, hardware, appliances, television and radio receivers, special bodies, experimental designs, and many other short-run products.

Form dies of plastic have been used in the aircraft industry for 3 years. Lockheed Aircraft Corp. and North American Aviation, Inc. developed them in conjunction with Rezolin, Inc. Chrysler Corp. pioneered their use in the automotive industry.

**A Rezolin Tool-Plastik die** was tested at Chrysler to determine how many pieces it would produce. The cowl side panel, of 0.040-in. steel, was chosen as the test piece because of the complex drawing operation involved.

A Tool-Plastik duplication was made of one of the steel dies. Punch and binder ring of the metal die were set up in correct relationship, and a female plaster cast was made to serve as the mold for the plastic punch. After the punch was cast and cured, the binder ring was fitted with the punch.

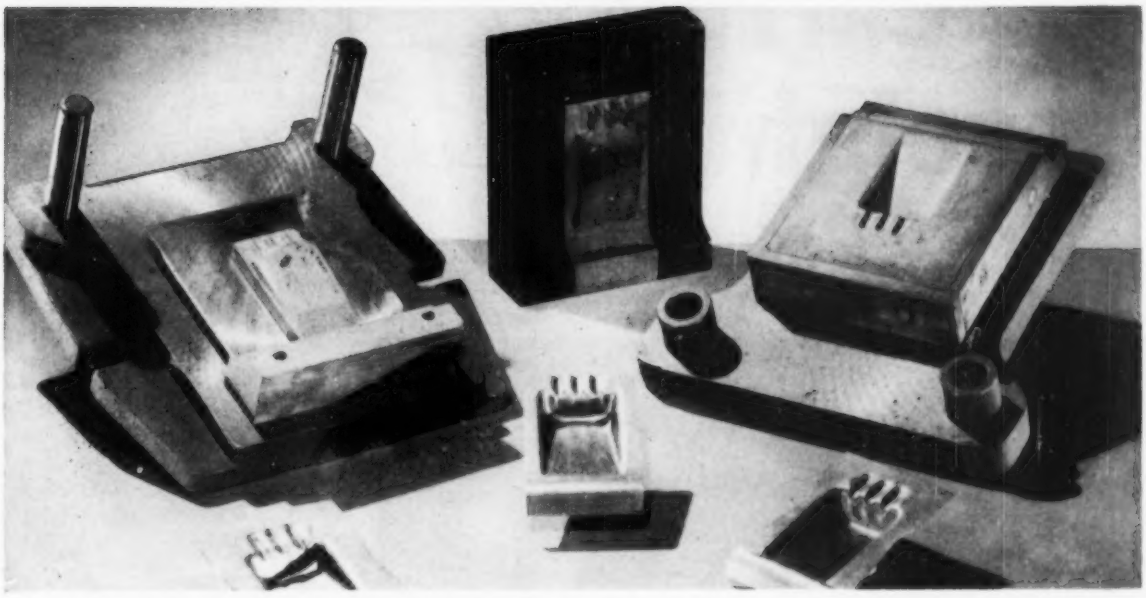
**Metal thickness** was applied by using patternmakers' wax. The female part of the die cast directly against the other, with accurate part thickness established between them, resulted in perfect mating. No Kellering was needed for shaping the die.

Boxings of boiler plate were fabricated by welding to contain the castings. Base members were made of 1½-in. plate, and walls of ⅜-in. plate reinforced with gussets. Weldments were then normalized and machined.

**Because of the acid action** of the plastic accelerator additive, the steel boxes were painted before use. They were then inverted over the mold, and the plastic was poured through holes in the baseplate of the box.

After some preliminary trouble, from insufficient wall thickness between the edge of the draw bead and the die cavity and from wear plates too short, the die produced excellent stampings. So far over 20,000 pieces have been stamped with little die wear.

The test die proved that combination metal and plastic dies can be made for 50% or less of the cost of an all-metal die. And they can be made in a third to half the time. The lighter weight of plastic dies



**SMALL STAMPINGS also can be made with plastic dies. These stainless-steel ash trays are made from dies designed and built by Modern Pattern Works, Toledo. The finished panel is 4 x 6 in. with a 1-in. draw.**

is still another advantage: 1,500 lb. for the plastic die, compared to 6,000 lb. for the conventional steel die.

**Early in the test run,** a piece of plastic broke under a wear plate. Repairs were made without removing the die from the press by patching with resin and an accelerator. Curing time was shortened by infrared heat. The run was resumed in 1 hr. 10 min.

Another advantage of plastic dies is the close tolerances that can be maintained without the necessity for over-size patterns. The plastic, a thermosetting liquid phenolic, has negligible shrinkage. Patterns and molds are made to standard scale with no allowance for shrinkage.

**With good molding** and casting practice, the as-cast finish of the die is ready for production. Machining, grinding, and polishing are normally unnecessary, whereas metal dies require many hours of such work to bring them to their required dimensions.

Rezolin Tool-Plastik is sold in unit lots of 100 parts of resin to 25 parts of accelerator paste. They can be stored indefinitely and mixed in that proportion when the cast is made. The plastic is mixed cold, poured without pressure, and cured by over-night heating at 160° F.

Cast plastic dies too large for oven curing can be cured by use of infrared lamps. Either method can easily maintain the 160° temperature. Each die member can be cast in a single shift and be ready in 48 hr. No other work on the dies is necessary.

Lockheed in 90 days made 42 double-action plastic dies for the air duct of its F-94 fighter airplane. Making metal dies for the same parts for the F-80, which is a similar airplane, took 6,000 man-hours longer.

**At Northrop,** seven typical aircraft tools that had been made in metal were cast in plastic. Time saving per tool averaged 47.7 man-hours, nearly all of it from elimination of tool finishing. Cast-in dimensions and finish were within tolerance requirements. Elapsed time was half that for metal tools, and over-all cost savings were more than 60%.

When the plastic tools were released to production, they were found to cause less galling of the parts and less distortion from cold working of the formed material than did the metal dies. The large dies could be "spotted in" within a single shift, while the comparable metal dies took up to 2 weeks.—Iron Age, Feb 19, p115

**Properties of Tool-Plastik**

| | |
|---|---|
| Shrinkage from mold dimensions | Negligible |
| Hardness, Rb, ½-in. ball | 110 |
| Flexural strength, psi. | 8,000 |
| Compressive strength, psi. | 11,000 |
| Tensile strength, psi. | 5,000 |
| Impact strength, ft.-lb. Izod | 24-0.3 |
| Specific gravity | 1.26 |
| Dielectric strength, kv. per cm. | 130 |
| Co-efficient of expansion, in. per in. per °F. | 0.000006 |

**Draw-Die Case History**

Item – Typical draw die for a panel involving considerable detail

Size – 30x60x3 in. deep

Tooling – In Rezolin Tool-Plastik: 21 days

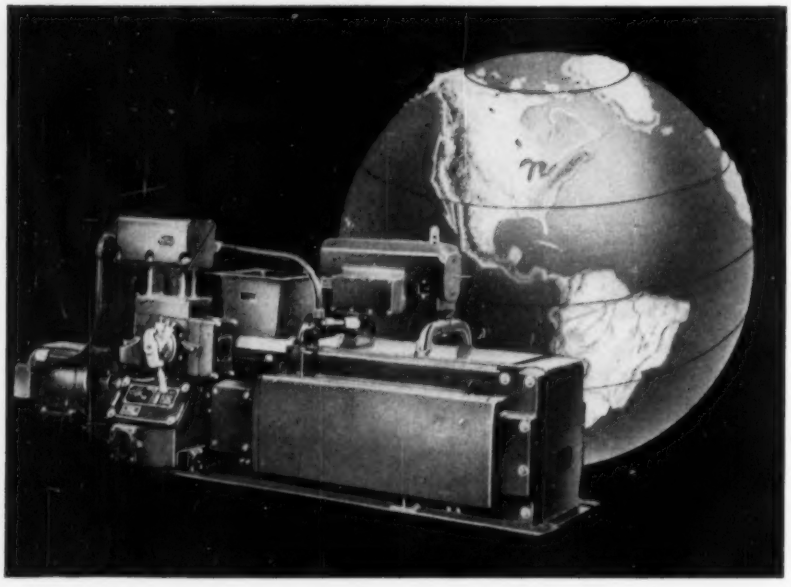
Cost – Plastic die cost one-half that of metal die

Weight – Plastic saved 40% in weight over metal die

Spotting-in Time – Plastic die 70% less than metal die

| Characteristics | Zinc Alloy | Plastic |
|---|---|---|
| Material cost per cu. ft. | $58.00 (15 to 16¢ per lb.) | $37.25 (49¢ per lb.) |
| Weight per cu. ft. | 375 lb. | 75 lb. |
| Pouring temperature | 750°F. | 70° F. |
| Curing Time | ..... | overnight |
| Shrinkage from mold dimensions | 1/8 in. per ft. | negligible |

# carries weight the world over



The Merchen way of feeding dry materials in modern processing operations — milling, pre-mixing and continuous blending—has won international approval in many hundreds of installations.

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In addition, by saving time and labor and by minimizing shutdowns, the W&T Merchen Scale Feeder contributes to substantially reduced operating costs.

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F-93

AGENTS IN MOST COUNTRIES

**WALLACE & TIERNAN CO., INC.**

NEWARK 1, NEW JERSEY, U. S. A.


## Transfer Machine Aids Limited Production

Even modern production methods need study—that is what Olivetti & Co., Ivrea, Italy, found out when it re-examined methods of machining a typewriter plate segment in limited production quantities.

In 1947, line production had been set up. A thorough study indicated these possible improvements:

| | Old | New |
|---|---|---|
| No. of machines | 22 | 14 |
| No. of operations | 25 | 14 |
| No. of handlings | 22 | 14 |
| No. of delays | 6 | 5 |
| No. of inspections | 11 | 8 |
| No. of workers | 5 | 3 |
| Length of line | 96 ft. | 63 ft. |

**Here is how it was done.** New multiple turning tools reduced number of lathes needed from four to two. A two-spindle drill press with multiple-spindle heads replaced two single-spindle machines with similar heads.

One transfer machine replaced a miller, two multiple-spindle drills, and one three-head, multiple-spindle tapper. Five double-head slotters replaced eight ordinary slotters.

**The transfer machine,** which is only 4½ ft. long, was designed to perform the greatest practicable number of operations on one machine. A continuous chain locates work, clamps it at each station, ejects it at end of cycle. The chain has 17 units linked together, each carrying a work fixture.—Am Mach, Feb 16, p133

### Growth Industry?

**Briefly, any industry can call itself a growth industry if it (1) is expanding all out of proportion to the rest of the industrial economy, (2) is not engaged in something transient or seasonal, such as making novelties or guiding tourists, (3) is not a war or defense industry.**

**A partial list of U. S. growth industries would include petrochemicals, plastics and synthetics, electronics, and antibiotics.**

**For more about a growth industry, see p41.**

De Havilland Comet . . .

Vickers Viscount . . .

Bristol Britannia . . .

# Britain's Three Big Jets

WITH A BOLD MOVE, the British have cast their lot with civil jet aircraft in a do-or-die effort to capture the world market. Whether or not it will prove to be a strong enough support for the weakened economy is anybody's guess.

But whatever the outcome, Prime Minister Churchill cannot be accused of halfway measures. He has inspired his government, rashly or not, to throw its whole weight behind the aircraft-industry's drive for commercial superiority of the air, reminiscent of the day Britannia ruled the waves.

**Behind the decision** is a sobering fact that may well have served to crystallize Parliament's thinking: Unless the British can become economically independent in the next few years, the country has no future.

And to the free world, should Britain collapse, would go a legacy of commitments in the Far and Middle East and in Africa. If the free world did not pick them up, Russia would, one by one.

First step in the intensive drive came last December when British Minister of Supply Duncan Sandys announced that super priority would be accorded to the building of three top jet transports, the De Havilland Comet, the Vickers Viscount, and the Bristol Britannia.

**The order meant** that material suppliers, labor exchanges, even house builders were to treat orders from the three firms as urgently as the most important rearmament orders.

Meanwhile, rearmament has been cut back and materials and labor shortages have been eased. Sandys said that supplies of critical steel alloys and components could be speeded up under super priority by as much as 6 to 12 months.

**Working at fever-pitch** the industries themselves appear to be meeting the responsibility placed on them. Vickers has production facilities tuning up to produce 100 Viscounts a year by 1954 if all goes well.

On the Comet, De Havilland has adopted a policy of proceeding with production before the prototype has flown. It has cost the company $1-million so far in adapting production to modifications made necessary after flight tests. But they consider the risk worth the advantages of early delivery. After hitting peak production early in 1957, De Havilland expects to finish and deliver 72 Comets a year.

Unencumbered by any other big aircraft orders, Bristol should be able to bring on the Britannia reasonably quick after design and engine modifications are completed. A production Britannia is

expected to be in the air sometime within the next year.

**The push so far** has brought some $210-million worth of orders for Comets, Viscounts, and Britannias, one third of them from abroad. Options for the three aircraft total now almost 190, more than half of which are for export.

Even though U. S.'s Pan American Airways has ordered three Comets and has an option on seven more of the aircraft, the biggest targets for British salesmen today are the European operators—KLM, Sabena, Swissair, SAS, and the new German Lufthansa. Some difficulty might come from the fact that planes now operating on these lines are mostly conventional propeller-piston models of U. S. manufacture. Maintenance personnel know U. S. craft; also, replacement parts are all figured on U. S. supplies.

**At the same time,** the British are rapidly getting into a position where their sales talk may be overwhelmingly compelling. Besides the technical progress Britain has made, the country will always have the built-in attraction of taking payment in pounds rather than dollars. And Britain's salesmen have the added impetus that comes from knowing they are selling to keep their island solvent.—Aviation Wk, Mar 2, p249

## More Airleg Drilling

Summarizing current trends in the drilling picture, the Chicago Pneumatic Tool Co. sees increases still under way in use of airlegs, carbide bits, including both detachable bits and tipped steel, and longhole percussion drilling.

**Some of the gain** in the longhole work has been at the expense of blasthole diamond drilling. Where drifters and carbide bits are used, the trend is still toward longer feed changes.

Jumbos are at least holding their ground. They are undergoing refinements of control, with some trend toward self-propelled units.

**For surface drilling** of 4-in. and larger holes down to 100 ft. in depth, rotary and percussion-type machines made gains, partly at the expense of wagon drills and well drills.—Eng & Min J, Mar, p102

## Melting Ice Helps Install Heavy Press In Pit

Nearly 24,000 lb. of ice helped set a 248,000-lb. press on its foundations in the Utica Drop Forge & Tool Corp. plant. The press was ramped to the ground from a flat car and started on its 1,575-ft. journey to its foundation.

**For the trip** to the shop, two well-greased steel beams were laid flat on the ground to serve as tracks. The press was skidded along this track by a seven-part line from a crane drum. At the doorway of the building the press was stood upright by two cranes.

Now upright, the press could be slid through a doorway into the shop building and up to its foundation pit. Meanwhile, the pit had been filled with 24,000 lb. of block ice. The machine was skidded on to this ice and allowed to melt its way into final position on special supports 4 ft. below floor level.

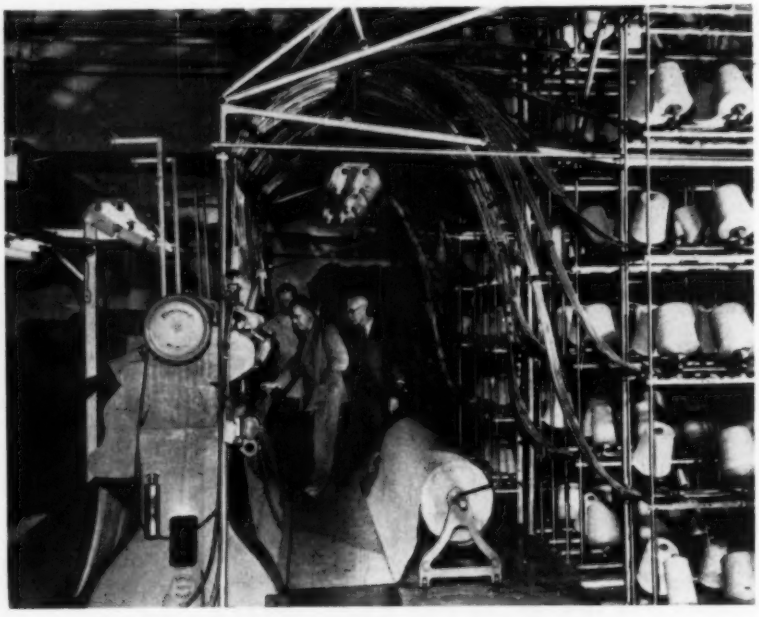
**It took 200 hr.** for the 248,000-lb. press to sink into place. Four cables, running from the top of the press to anchors in the shop floor, guided the machine into exact position as the ice melted. Central Steel Erecting Co. handled the job.—Const Meth & Equip, Mar, p56

## New Die Metal

General Motors Overseas Corp. has been using a new zinc alloy developed by GM research laboratories for long-wearing short-run dies. Known as Gmoodie metal, the special alloy formulation has been patented and is in use in various GM overseas plants.

The new metal is said to have extremely long life and outstanding fidelity for fine details. Shrinkage is said to be uniform and predictable, thus making it possible to produce dies so close to form as to make little machine work necessary.

In one trial run, a die for a garnish molding was good for 90,000 pieces and was still usable.—Auto Ind, Mar 1, p14



## Needle-Stitched Cotton Carpeting

**Tufting machine, 14 ft. wide and capable of matching output of 20 conventional carpet looms, has been developed by Magee Carpet Co. Its 1,000 needles stitch cotton yarn into a backing of twill-weave jute and kraft material. Aluminum tubes feed yarn from 30,000-lb.-capacity creel at the right for production of cotton carpeting in 9- and 12-ft. widths, at speeds of 2 to 4 yd. per min. A coating of a new synthetic plastic latex, developed with aid of U. S. Rubber Co., on the back of the carpeting locks the individual loops to the backing.—Textile World, Mar, p256**

# Hot or Cold

## Maybe you like it hot; maybe you like it cold. Either way, vending machines can sell it to you

MAKERS OF VENDING MACHINES have not yet found a limit on what can be done with them. They started with peanuts, candy, chewing gum. After the war they offered prepared foods, served hot or cold, and drinks, served in paper cups. Today coffee, ice cream, soda pop, apples, fruit juice, doughnuts, sandwiches, and popcorn are available. Now, vending machines have spread into two new areas—hot soup by the cup and milk by the carton.

**Installation** of 70 milk vending machines in New York City apartment buildings is perhaps the most significant of the two developments. If the idea spreads, it could well upset old patterns of milk distribution—especially in cities where there are a lot of multiple-housing developments.

Each machine holds 140 chilled cartons of milk. The machine is stocked by a regular route milkman, more than once a day if necessary.

The milk machines are made by Rowe Mfg. Co. of New York. They are so made that they can sell butter, cream, cheese, and almost any packaged food that can be kept under refrigeration.

The hot-soup machines were developed by Snively Groves, Inc., of Winter Haven, Fla. The company sells conventional cold-juice machines, but these do far less business in winter than in summer. So, to even things out for the operator, Snively is adding the soup unit.

**Last winter** there were about 125 of these soup machines operating in industrial plants and transportation terminals in several cities. In April, most of the machines converted to cold-drink dispensers; then, next November, they will go back to soup.

According to the trade magazine, *Vend*, the vending-machine business is bigger and broader than ever. But the lion's share of the vending-machine volume still goes to two oldtimers: cigarettes and candy.—Business Wk, Feb 14, p70

On FORMOSA too
CLARK
MEANS SPEED

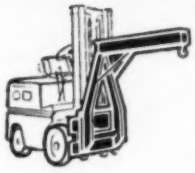
The application of modern techniques and machines to the problems of producing and distributing goods points the way toward a new era of prosperity and productivity in the far East.

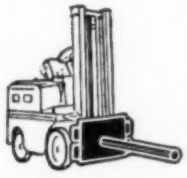
On Formosa, where Wm. Hunt and Co. is the CLARK distributor, this trend is apparent. Civil Air Transport, headed by General Claire Chennault of war-time "Flying Tiger" fame, operates its "Speedcargo" service through Sung Shan Airfield. To insure that this service lives up to its name, C.A.T. loads and unloads its big planes with Clark fork-lift trucks. C.A.T. places great value on Clark's contribution to speed and efficiency.

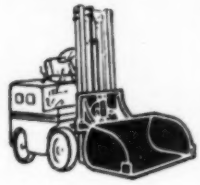
The Keelung Harbor Bureau, part of the Taiwan Provincial Government Ministry of Communications, employs Clark trucks in its warehouse operations. Here, too, Clark assures faster handling, increased storage capacity, less damage, fewer accidents, and greater cost reductions.

Wherever modern ideas are applied to materials handling problems, you will find Clark.

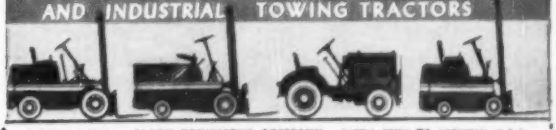
Your Clark distributor is ready to help you solve *your* materials handling problems. For his name and address, write to the Export Division, Clark Equipment Company, Battle Creek 73, Michigan, U.S.A.







CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



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# Paper on a Global Scale

**Paper and pulp company will find a raw material for you, design your paper mill, supply machinery, and even provide the plant management**

In New York, a 100-year-old-paper and pulp exporter, Parsons & Whittemore, Inc., announced it intended to build pulp and paper mills in Central and South America, Africa, and Asia. Headed by Karl F. Landegger, president, the organization is ready to:

- **Analyze and develop** new raw materials for papermaking—from desert grasses to eucalyptus trees.
- **Design and produce** machinery for almost any papermaking process, then engineer a plant to use it.
- **Help local capital** in underdeveloped countries build paper mills; supply needed equipment and raw materials after the plant is running, as well as market its output.
- **Supply top-flight talent** to manage the mill. St. Regis Paper Co. has agreed to take management contracts in some of the mills the Parsons & Whittemore organization builds. St. Regis has had a lot of experience abroad, runs a string of bag plants in Europe, Africa, and Asia.

Landegger says the world's paper industry badly needs new mills. He believes that no country can raise living standards without increasing paper consumption. And not every country can make every kind of paper; there will always be a huge world trade in the commodity. But Landegger says that in most places you can find some sort of paper raw material. All that is needed are careful testing and a great deal of know-how.

**The Landegger group** already has several concrete examples of what it can do. Costa Rica's first complete paper mill—a small $1.5-million affair making bags—has started production. Instead of imported pulp, the plant will use abaca fiber as raw material.

Lyddon & Co., Ltd., London, a Parsons & Whittemore affiliate, surveyed the site, studied availability of abaca, then analyzed it and found that it could make a stronger bag paper than 100% kraft pulp, the usual raw material. So Lyddon supplied the entire mill, did all the consulting work, and took a mortgage in part payment.

**In North Africa,** Lyddon's Tunisian subsidiary has for 30 years leased cutting rights on the edge of the Sahara for esparto grass, which it ships to paper mills in Britain. Lately, there has been some talk of a mill right in Tunisia.

In Brazil, a $5-million project is under way to make a high-grade pulp out of eucalyptus wood. Elsewhere—in Turkey, Australia, Uganda, the Philippines, Chile, Mexico, Venezuela, Portugal, and Jamaica—the Landegger interests are studying paper possibilities.

**Local capital,** says Landegger, should own any paper plant—that way there will be less danger of politics and nationalism. Finding local capital in an under-developed country is generally hard. But there is often government money in a scheme (as in Costa Rica). And Landegger reports that the U.S. Mutual Security Administration and the Point Four people in Washington are "keenly interested" in his plans.

**Foreign exchange** is always a problem. Landegger has worked out various methods to minimize this trouble. He can deliver paper machinery for dollars, sterling, or Deutsche marks—from plants in the U.S., Britain, and West Germany. He can—and has—taken payment partially in commodities like sugar, coffee, insecticide, even chromite ore, which he trades in the world markets. Eventually he gets his money out. —Business Wk, Feb 28, p142

## New Road Method

**Shell Oil Co. engineers have adapted a bituminous process, known as wet-sand mix, to building roads in British Borneo. Stone is scarce, so the wet-sand mixture, consisting of 91% sand, 4% hydrated lime as activator, and 5% cut-back asphalt, is laid, rolled, cured, sealed, and covered with fines. Work can be done in heavy tropical rains.—Oil & Gas J, Feb 2, p47**

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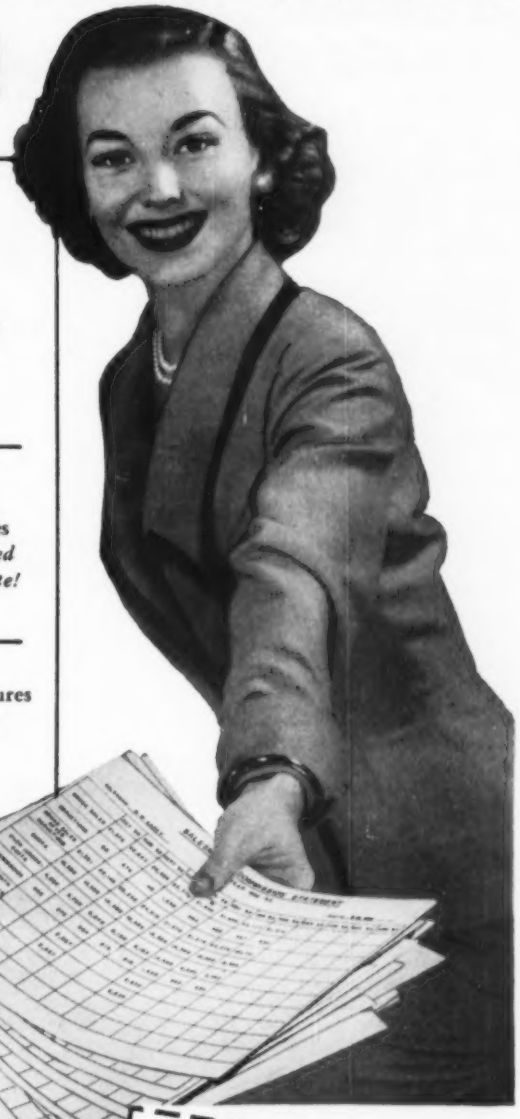

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|---|---|
| SALES | 328 |
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| | JAN. | FEB. |
|---|---|---|
| SALES | 328 | 421 |
| COSTS | 160 | 280 |

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|---|---|---|---|
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## Shock Waves Expel Fat from Fat and Oil Cells

Sonic-frequency waves have cracked enemy submarine hulls during wartime. Now they have been applied to rupturing fat- and oil-bearing animal and vegetable cells to get high recovery and a pure product.

**Cold-water slurries** of the materials are passed through a device called an impulse renderer. This is a modified hammermill, but no milling takes place. Instead, the hammers produce shock impulses that are transmitted through the fluid against the individual cell walls.

The Chayen process, as it is called, is producing some interesting results. Tallow recovered from tissue and bones is a bland, white fat with total moisture and impurity content of 0.02%. Recovery is about 30% better than can be obtained with conventional dry rendering. Solid residue can yield a glue three times stronger than standard bone glue.

**Work now underway** indicates commercial use of the process for extracting oil from fish livers and bodies. Trials on cod-liver extraction have shown 95% oil recovery with twice the vitamin content of oil produced by conventional procedure.

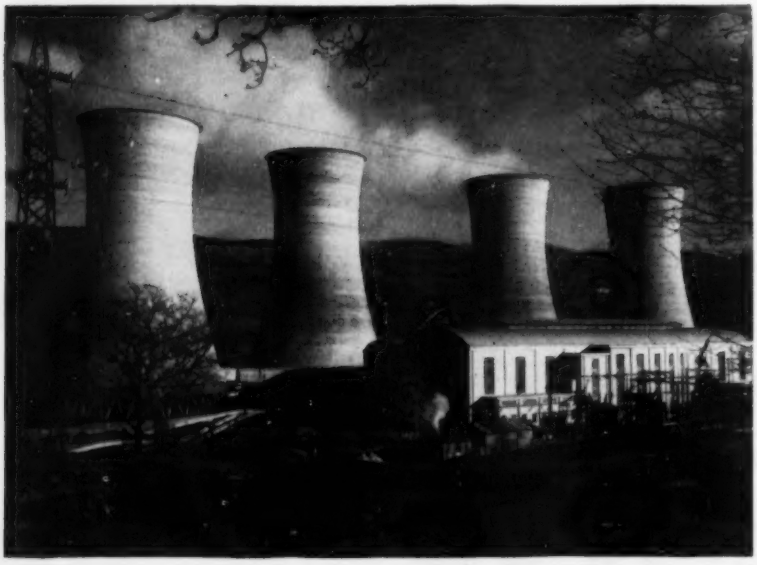
**The process** may also eliminate steps in oilseed extraction. Decortication, roasting, flaking, separation and recovery steps will be either bypassed or modified.

British Glues & Chemicals, Ltd., developed the process. Three English and one Canadian plants are in operation. Sharples Corp. has U. S. sales rights.—Chem Eng, Feb, p118

## Removes Fruit Mold

Addition of detergents to wash water offers an effective, inexpensive means of removing molds from fruit. Tests carried out with strawberries have revealed mold-count reductions exceeding 50%. Detergents used were Monsanto Chemical Co's. Santomerse D (alkyl aryl sodium sulfonate), and Sterox CD (nonionic polyoxyethelene ester).

Cost of the detergent is low—about 0.05¢ per lb. of berries, using 10 gal. of an 0.1% solution of Sterox or Santomerse. Best results, a 54% reduction, were obtained by washing berries with Santomerse. —Food Eng, Mar, p87



## Italy's Lardarello Geysers Take On More Load

**Recently opened Lardarello, Italy, Power Station No. 3 is one of the more important geothermal steam stations making use of the natural steam vents or geysers in this region. This one adds still another 120,000 kw. of turbine's generator capacity on the line. An estimated 900-million kw.-hr. will go out on the transmission line.—Power, Feb, p152**

## How To Run Synthetics On Wool-Fiber Systems

Optimum conditions for wool have not been determined—much less the optimum conditions for the new synthetics. Synthetics have less variation in denier and length, but they are being processed on machinery designed for wool fiber. Here are some tips on how it is done:

• **Carding**—Little carding action is needed. Severe carding will cause the fiber to elongate, and heat processes in later operations may then relax the fiber. Open settings may cause rolling and neps. Loading the card will cause neps.

• **Gilling**—On the first few gilling operations, the ratch on the gill box should be opened up. An antistatic roll, oil, and/or bar are helpful in gilling and further operations. Moisture changes will play havoc with interfiber friction. Temperature-sensitive fibers will soften if too much pressure is used on drawing rolls.

• **Dyeing**—Gilling of the dyed sliver increases the difficulty of getting a good dye. Some of the faults found are hard spots in the sliver, excessive dye, shady spots, distorted sliver from blowing, and channeling.—Textile World, Feb, p111

## Fine Food at Low Price

Moloney Electric Co. had no room for a cafeteria in its St. Louis plant. So how could it have in-plant feeding and still not lose money?

Here is what it did. It put the kitchen in a corner of the warehouse. And it served food in the plant from mobile trucks. In a warehouse area, 25 x 40 ft., Moloney installed a complete kitchen where food is cooked and packaged in sanitary containers.

Four modern, electrically heated self-service food trucks distribute the food in the plant. Each truck has its own fixed station and serves food only during lunch.

Total capital investment was small. Yet 1,000 workers get fine food at low cost. And the set-up is paying for itself.—Factory Mar, p135

## Milled Block Simplifies Microwave Construction

Using waveguides cut in blocks of conductive material permits reduction in the bulk and complexity of microwave circuits. Sharper curves without spreading of the waveguide walls and reduction of reflection losses in fitting mechanical components are also possible by this method.

**The circuit,** developed by Ferranti Ltd., is made up of two mated milled blocks. Each block has rectangular channels half the width of the major dimension of the waveguide. When joined together, the channels coincide to form complete waveguide and duplexer circuits. Guideways for transmit-receive tubes, crystals, or probes can be milled where required.

Time required for manufacture is about one-third that required to make conventional waveguide assembly.—Electronics, Feb, p189

## New Bonding Agent

Anaerobic permafil is a completely "different" bonding agent. It solidifies in the absence of air. And it has a tremendous ability to penetrate and seal tiny pores in metal—without pressure.

It is still far too expensive to produce except in small laboratory quantities. But the developer, General Electric Co., expects to solve this problem soon.

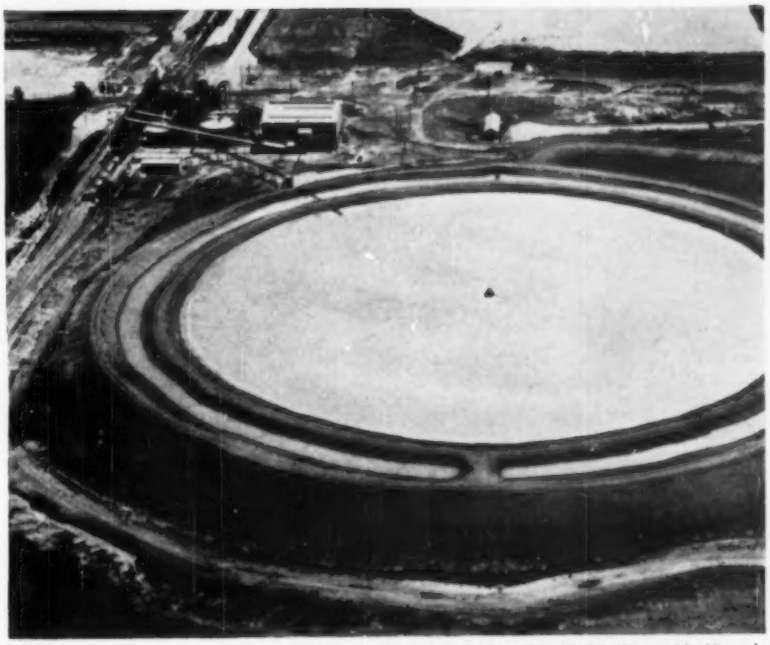
Most practical application of anaerobic permafil seems to be in bonding two smooth metallic surfaces. The smoother the surfaces, the less air between them. That is the ideal condition for solidifying the new adhesive.—Factory, Feb, p122

### U. S. Port Series

**Look for the second article in this Digest series next month. You will read about San Francisco's world famous port, its $20-million modernization program being carried on without taxing California citizens, and its plans for building a world trade center to stimulate trade with Europe, Latin America, and the Pacific nations.**


**SOLVED:**

**a 900,000 gallon-per-hour problem!**



Largest installation of its kind in the world, this sedimentation unit handles 900,000 gallons per hour.

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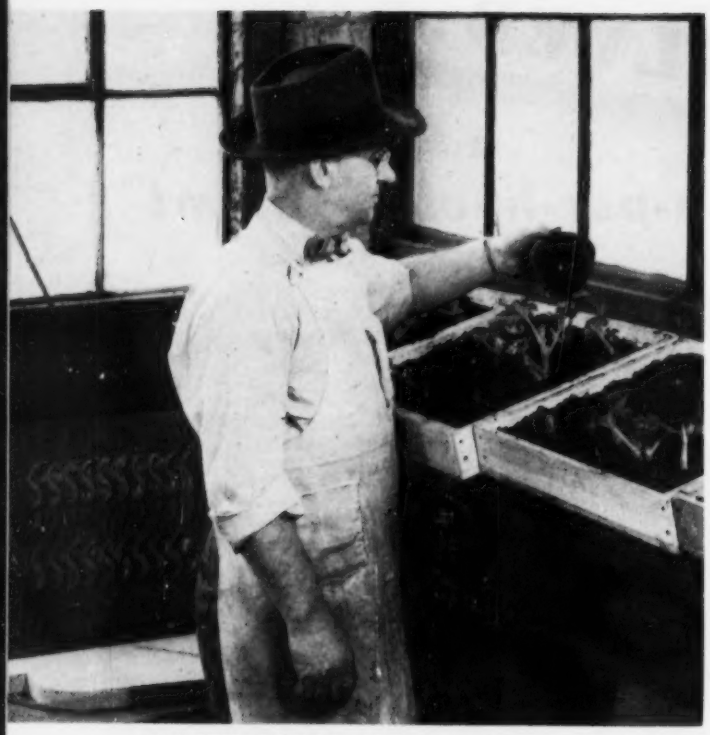
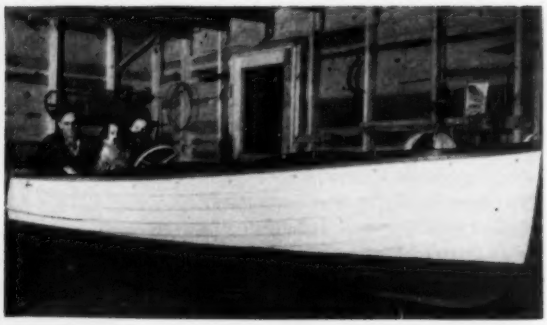


INFORMALITY lets George Norton grow plants by bench



PROFIT SHARING bought this boat for George Elish

HOME LOAN by company helped Jim Lewis buy farm

*This Small Plant Knows How to Have . . .*

# Good Employee Relations

**Company feels its smallness is an asset, permitting an unusually complete employee-relations program. Any company can have as good a program**

SINCE GORMAN-RUPP CO. began operations in Mansfield, Ohio, 20 years ago, it has grown steadily from a net worth of $1,200 to its present net worth of $1¼-million. And its employees have increased from 1 to 180. The company now turns out a complete line of self-priming centrifugal pumps in a tidy, newly expanded plant.

As the company has prospered, so have its employees. But there is more to it than prosperity and high wages. There is a friendly working atmosphere in the shop that you feel almost as soon as you step inside. There is a remarkably complete employee-relations program—the kind that most small plants tell you only the "big guy" can afford. And there is a simple but effective management philosophy of fraternalism (*not* paternalism) that makes the whole thing work fine.

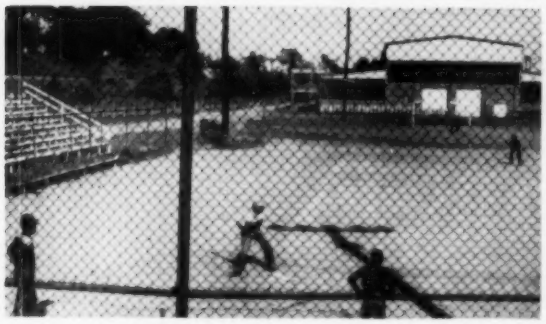
**At Gorman-Rupp,** the philosophy turns out to be good business. For example:

1. Competition indicates that man-hour output is high for the industry.
2. Quality of workmanship is excellent.
3. Labor turnover for all reasons is low.
4. The company's reputation is becoming legendary in Mansfield.
5. Employees really work for higher profits.

**The company attitude,** basically, is that investing in employee well-being is good business. Its aim is to give workers the chance to enjoy their work in congenial surroundings and with congenial fellow-workers.

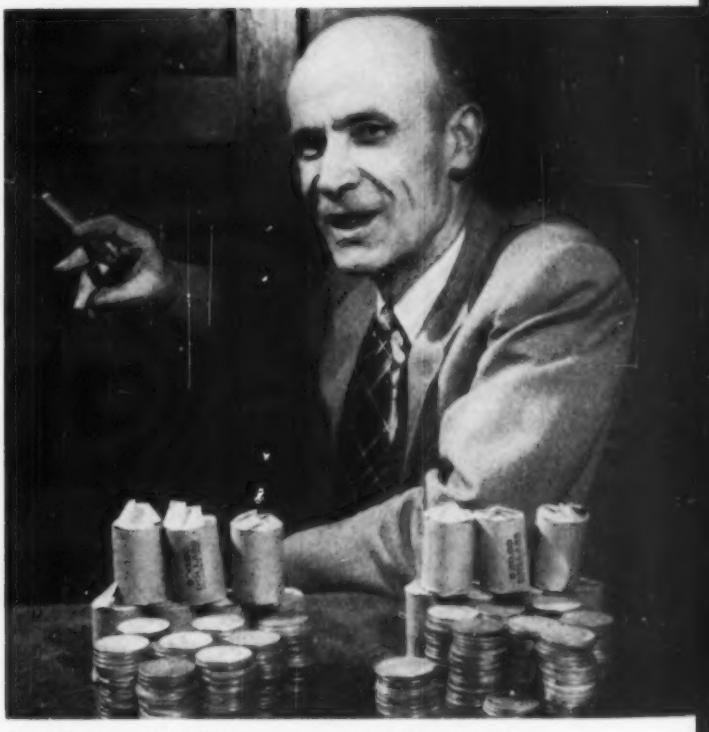
More specifically, here are some of the main principles underlying this company's program:

1. Competition largely fixes selling price, but employees determine the "making price."
2. Employees will work hard to increase company profits if they are given the opportunity and incentive to do so.
3. The informal, friendly shop is the efficient shop.
4. Personal interest in employees and their problems is essential.
5. Any employee-relations pro-



RECREATION FIELD for employees serves children, too

"FRATERNAL POLICY" lets Chuck Watson fix car in shop



CHRISTMAS SAVINGS pile up for Ralph Myers

gram must be built on a solid foundation to get results.

**The problem is** to practice the theory. Gorman-Rupp does, in literally hundreds of ways, mostly small. Here are some specific examples. Some are costly. But others just take the time and patience and interest to think them up and put them into operation.

1. **Profit sharing**—Regular employees share in a portion of each month's profit. Beginning with the third month of a new employee's service, he shares on the basis of 10% of the amount prorated to the month. The fourth month he shares 20% and so on until the 12th month; thereafter, he participates in full.

2. **Informality**—Easy-going informality, but not laxity, is characteristic of company operations. Small privileges are granted as long as they do not interfere with work.

Gorman-Rupp works only limited Saturday schedules because many employees are landowners and like full week ends for themselves. And they push hard during the week to get their work out.

3. **Company cooperation**—Following a "fraternal" concept of plant operation, the company has made its tools and shop facilities available to all employees. After hours they can carry on hobbies and do "home jobs" right in the shop.

4. **Christmas savings club**—To be sure each employee has ready cash available at Christmas each year, Gorman-Rupp operates a savings club. It matches—to a limit of $3 a month—what the employee banks in the club.

5. **Help in buying new homes**—Because Mansfield is in the heart of a rural area, company officers encourage employees to own their own homes and 40 to 50 acres of land. That way they have a larger stake in the community—and in the U. S. too. Loans are interest free.

6. **Worker representation**—There is no union at Gorman-Rupp. But the company voluntarily recognizes a work committee. All members are hourly-paid workers. Employees elect one member. The company selects one. And the third is chosen by the first two. The works committee is an accepted and respected two-way channel of communication between management and employees.

7. **Social activities**—For example: The company picnic is a family affair held each summer. Company provides park facilities, meat, bread, butter, coffee, orangeade, beer, plates, and cups for everyone, plus rides for the children.

Christmas parties are provided by the company. Wives receive presents from the company. Men get their profit-sharing checks.

8. **Employee retirement trust**—Age limits of the trust are 25 to 55 years. Qualifications are regular employment and 5 years of service. The company pays all costs of the vested plan, which is independent of, and in addition to, social security. Optional settlements are available on retirement or withdrawal.

9. **Insurance protection**—Gorman-Rupp employees are covered by several kinds of insurance. In addition to workmen's compensation, the company covers all employees, at no cost to them, with off-the-job insurance. — Factory, Mar, p102

# Bethlehem Buys from the World

To help make its millions of tons of steel each year, Bethlehem imports raw materials from 41 countries around the globe.

We must have, for example, such products as chrome, tin, tungsten, manganese, fluorspar, hemp, rubber, paper pulp, and chemicals. Some of these actually go into the steels we make; others are required for plant operations that contribute to steel-production.

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# TECHNICAL SHORTS

**Work Films**—Consolidated Vultee Aircraft Corp. is using moving pictures of its construction methods to show management where weak points exist. Pictures also orient supervisors, show them all steps in manufacture. Crowding or understaffing, poor methods, unsafe practices also reveal themselves more readily to the disinterested eye of the camera.—Aviation Wk, Feb 2, p28

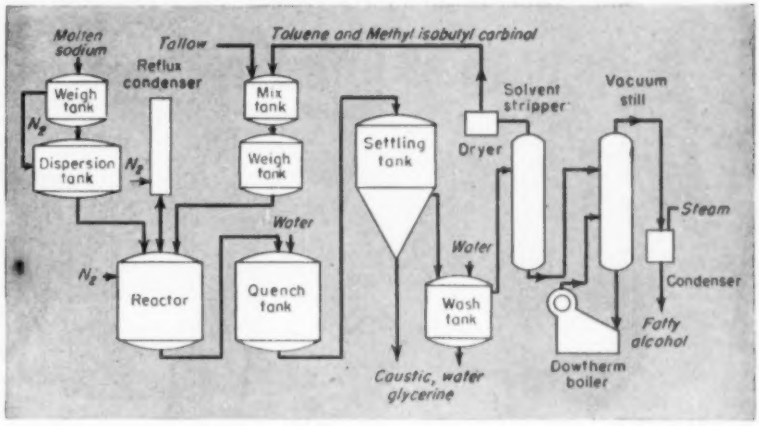
**Storing Magnet Tape**—Magnetic tape should be loosely rolled, stacked on edge, in 40–60% humidity room. If humidity is high, store in sealed container. Running the tape once in a while relieves tension, improves storage ability.—Electronics, Mar, p270

**Target for the Month**—Jet airplanes are tough on concrete runways because of jet fuel, high temperatures (1000°F.), and tornado-like winds. A big market lies ahead for the company that develops inexpensive jet-tough paving materials. Best under test so far are coal tar and synthetic rubber compounds as binder for surface course cement.—Chem Wk, Feb 21, p24

**Nickel-plating Research**—Project of American Electroplaters' Society reveals that properties of an electrodeposit are determined primarily by the chemical and physical nature of codeposited impurities. Operating variables, except as they influence the codeposition, had minor effect on results.—Iron Age, Feb 26, p133

**Saves by Purifying Water**—Empire Worsted Mills, Inc. traced 60% of its rejected goods to bad water. Installation of filters and water softeners controlled pH, hardness, and purity. Two years later, mill reports dye lots seldom have to be rerun and $12,150 are saved each year on chemicals, dyestuffs, soaps, and boiler-upkeep costs.—Textile World, Mar, p121

## *Fatty Alcohols Are Made from Tallow . . .*




**. . . by a new process that may soon let tallow crash the market as a detergent base. Stepan Chemical Co., in a $110,000 plant with a capacity of 1.5-million lb. of fatty alcohols a year, will employ a sodium reduction process. Sodium is melted, dispersed in toluene, and mixed with a tallow mixture of tallow, methyl isobutyl carbinol, and toluene. Sodium and the carbinol react, and tallow glycerides are reduced to fatty alcohols. After settling, washing, solvent stripping, distillation, and condensing, fatty alcohols pass to storage. Yield is 85 to 90%.—Chem Eng, Mar, p118**

**Finds Hidden Conduit**—Simple method for locating conduit in plastered wall uses small compass and storage battery. A direct-current voltage is passed through conduit; when the compass is moved over wall, it will deflect at the conduit.—Elec C&M, Mar, p169

**New Corrosion Test**—British Iron and Steel Research Association reports that exposing a test specimen to a dilute solution of sulfur dioxide inside a covered container simulates attack by industrial atmospheres better then does the salt-spray test. Moisture is produced by an electric heater and cooling coil.—Prod Eng, Mar, p9

**Carbide Grinding**—General Motors' Cadillac Div. at Cleveland Tank Plant sharpens carbide tools with silicon-carbide wheels. Cooling with carbon dioxide has eliminated heat damage to carbides and permits operations formerly possible only with diamond wheels.—Am Mach, Feb 16, p172

**Reminds Worker to Wear Goggles**—A "goggle switch" is the novel idea that has helped Westinghouse Electric Corp. to lower its accident rate. A pair of goggles suspended from a box above a machine must be pulled before the starting button will work. When the operator pulls the goggles, a light goes on behind a sign advising him to "put on your goggles".—Am Business, Jan, p46

**Fire-fighting Rain**—Rain-making to combat forest fires has undergone extensive tests in northwest U. S. During a 4,000-acre fire last July in Washington, clouds were seeded with silver iodide. By midnight, rain had ended the spread of flames.—Paper Ind, Feb, p1333

**Film-wrapped Lemons**—Loose pillow-wrap of clear 20-gage Pliofilm with intermittent seal along its side seam is a better preservative than tight seal wrap. Appearance is excellent and lemons keep 5 months.—Mod Packaging, Mar, p98

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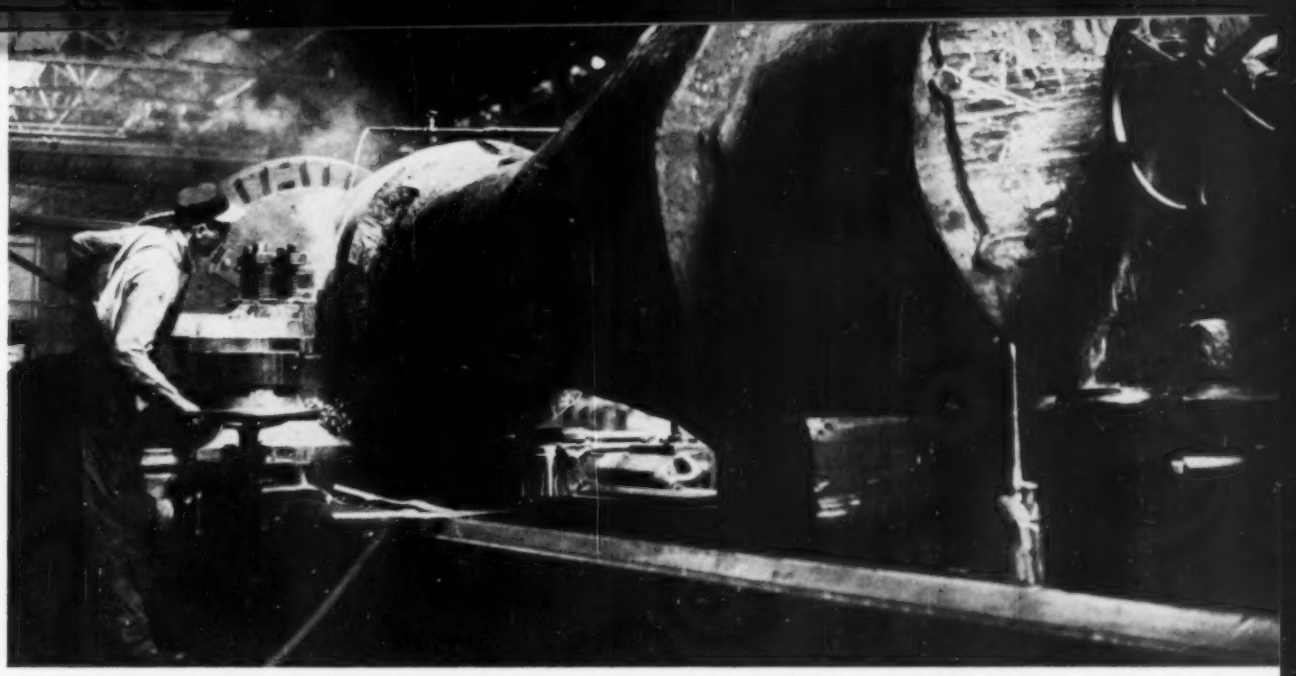


**HUGE FORGING** forms the beginning of a steam turbine that will add to world's power output

*To Industry and Farms Go . . .*

# Exports For a Better World

**Earth movers, farm machinery, basic industry machinery—that is only part of what leaves Allis-Chalmers factories. Industrial know-how is the other part. You will find both everywhere—an original Digest article**

IN 1847, flour millers in the Milwaukee, Wisc., area went to Decker and Seville for their mill stones. In 1953, the whole world goes to Allis-Chalmers Mfg. Co., giant descendant of Decker and Seville. And it asks for more than mill stones.

Today's products cover the whole range of industrial equipment—from V-belt drives to turbines and generators; from farm and construction equipment to flour mill and mining and cement machinery.

Two main divisions handle the company's products—tractor and general machinery. Instead of one factory, Allis-Chalmers now has 11 U. S. plants, 4 foreign plants, and 3 foreign subsidiaries.

**Allis-Chalmers** has done more than set up overseas plants to make and market its products. It has long encouraged exchange of engineering data with foreign countries. In the late 1800's, alert to the possibility of a growing demand for electric power, the company went overseas for know-how in developing steam and hydraulic turbines. And in 1876, Allis-Chalmers introduced the Hungarian roller mill process of flour milling.

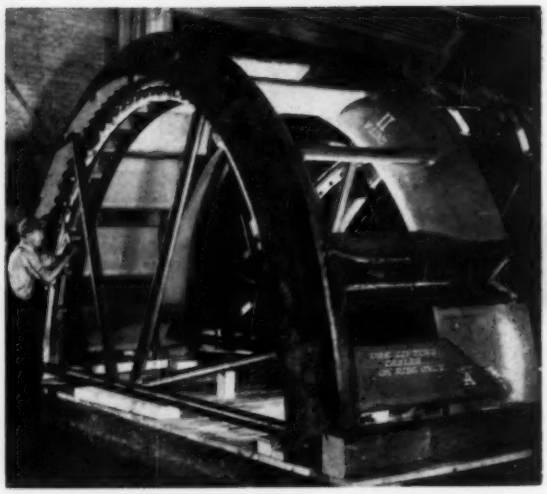
In a single year—1882—over 3,500 pairs of the rolls were put in operation in Ireland, Austria, Hungary, Scotland, New Zealand, and Japan. Today, students from all over the world study the modern counterparts of these early models. They learn production methods and procedures for application in their own countries.

**Worldwide recognition** came in 1897 when the company supplied horizontal cross-compound engines for the Central London Underground Railway. Three years later, the *London Times* asked why "an American Works over a 1,000 mi. from the nearest seaport on their side of the Atlantic could wrest an order for engines of largest size" from foremost English firms. The *Times* also observed that the success of the large engines "has been backed by shrewd, energetic commercial management, and by a bold venturing of capital whenever thoughtful consideration gave promise of a good return."

Among general-machinery-division products, cement and mining machinery have been in greatest demand by foreign nations, followed closely by power equipment. There are few mining places in the world today that do not use some Allis-Chalmers equipment.

**The company supplied** all the equipment for a 300-ton per day wet-process cement plant for Compania de Cimento Portland "Caue", Belo Horizonte, Brazil and most of the equipment for El Salvador's first cement plant. It also engineered and built the Paipote copper smelter at Copiapo, Chile. Almost completely

**TRACTOR with bulldozer-blade attachment smooths the way for a highway in Mexico**



**SPEED RING for a turbine waits for shipment to Maraetai Public Works Plant in New Zealand**

self-contained, the smelter is the most modern and complete installation of its kind in the world.

**In the power-equipment field,** Allis-Chalmers has provided the Sao Paulo Light & Power Co. with three world-record double-overhung impulse hydraulic wheels. It furnished a 20,000-kw. turbine-generator, condensers, pumps, transformers, and other equipment for the modern semi-outdoor Arrecifes power plant in Venezuela.

Even at such distant points as Reykjavik, Iceland, and Taiwan, Allis-Chalmers machinery helps people to produce more, have more, and live better. The former country is the site of the world's first application of processing fish oil from full fat-bearing meal by means of Allis-Chalmers continuous solvent extraction process. Taiwan is the home of the first rice bran continuous solvent extraction plant in the Far East utilizing the Allis-Chalmers process.

**Of particular value** to foreign processors are Allis-Chalmers modern research laboratories. The company makes available pilot-plant facilities for grinding; crushing; concentration; food chemical and grain processing; oil extraction; and pyro processing. In addition, complete facilities are available for chemical and physical analysis.

Here is an idea of how the laboratories function to lend a hand in facilitating operations abroad. The Ryukyu Islands needed a plant for the production of coarse and fine aggregate.

Allis-Chalmers furnished crushers, hammer mills, screens, motors, drives, electrical and substation equipment, and plant design engineering for this installation. In connection with the design, tests were needed to confirm hammer-mill product data. A sample was flown from the Ryukyu Islands; within 8 days after it left that point, all test work had been completed by the company's research laboratories.

**The tractor division** is new, comparatively, to the Allis-Chalmers Mfg. Co. Formation of the division was a determined step of the company to broaden its line of products. It planned to enter a field that would place its merchandise and its name before the general public and also to diversify so that its products would not experience peaks and valleys in production. The company wanted to achieve a uniformity that would make for a stable business.

**Realization of this plan** is certain. The familiar Persian orange color of its products is well known by farmer, grower, rancher, contractor, builder, and a host of other industrial users.

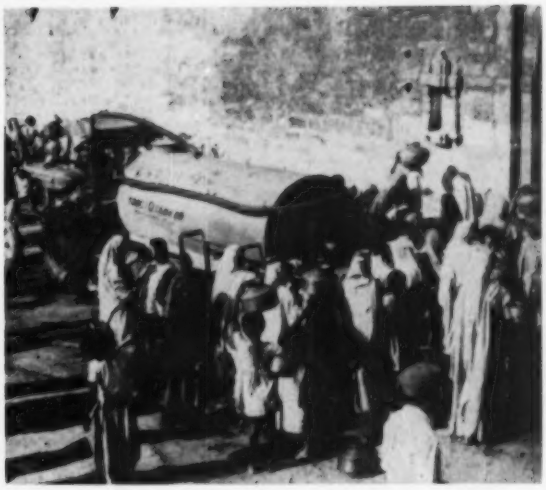
Today this young, energetic division has only started to tap the potential business for farm and construction machines. The need is widespread for these machines to help raise the living standards of the people they serve. It is the continued goal of the company to broaden the usefulness of these machines to make better living possible for all peoples.

**Among the division's** more important contributions to farm machinery and construction equipment are:

- A tractor with a one-piece heat-treated steel frame.
- A crawler tractor equipped with a torque-converter drive.
- A one-man power take-off combine that harvests over 100 kinds of grain, bean, seed, and sorghum crops.
- A machine that makes a twine-wrapped rolled bale when baling hay or straw.
- Farm tractors with low-pressure rubber tires.

**Allis-Chalmers activities** in foreign markets are principally through dealership arrangements in the countries where its products are sold. Under this plan, Allis-Chalmers stresses that the dealer is the logical person to spread and encourage the use of more farm and industrial machinery. His place of business is the local headquarters for machinery knowledge and know-how. Farmers and others that use these products rely on him for service and help to keep their equipment running smoothly and effi-

**GRADER does finishing work on a new highway between Sao Paulo and Belo Horizonte, Brazil**



**AGRICULTURAL WHEEL TRACTOR tows water tank to thirsty people during drought north of Bombay, India**

ciently—and as an ever-ready source of dependable spare parts.

Allis-Chalmers, the manufacturer, relies on this individual as a trusted contact with the customer. The dealer, complete with his service, forms an important asset of a community. The business operates at a profit that is spent locally and hires local employees who increase their knowledge of the product.

**The dealer-customer plan** in this form of business relation in the U. S. proved successful on a large scale, and its use abroad further encourages expansion because of its emphasis on the free-enterprise system. It does not guarantee success to all. But the citizen-dealer with good business practice and the desire to grow can succeed.

The dealer for his profits in selling Allis-Chalmers equipment realizes his obligation to his customers and consequently builds his organization to give owners good service. His assistants train in factory-approved methods of servicing. He also advertises the products he sells to better acquaint the local trade with the line. The most complete scope of machines and attachments are available to the dealer without seeking additional tie-ins because expansion through the years has brought those needed additional items already into the Allis-Chalmers line.

**With the world growing smaller** through better communication, Allis-Chalmers looks with confidence to the fulfillment of these goals:

- Improvement of product to make it more adaptable to its locally-required use, consistent with good business operation and economical price.
- Further training and education programs to spread technical skill to dealer personnel in all lands to make the most efficient use of machinery by the operator.
- Extend the market so that new areas may obtain these products to the betterment of their people.

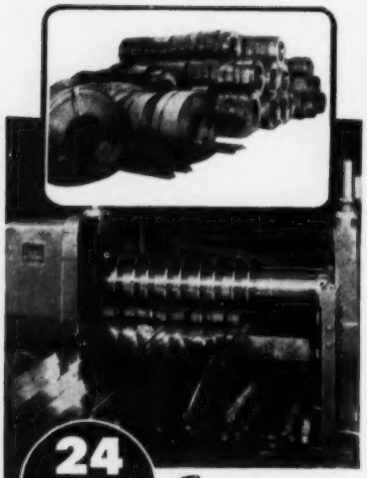
With the good cooperation of its friends in many lands, Allis-Chalmers feels its future looks bright.

**WET-PROCESS KILNS get ready to meet demands for cement from growing French industry**

## Villa Plus Kiln Capture Torreon

**A veteran company employee recalls how in the early 1900's an Allis-Chalmers cement kiln unwittingly played a role in the capture of Torreon, Mexico, by Pancho Villa, bandit politician. The kiln, some 8 or 9 ft. in dia. and 90 ft. long, was shipped in one piece on flat cars to save the expense of assembling it at its destination.**

**Villa captured it in Mexico. He filled it with a sizeable number of men, put about a half mile of cars between it and the locomotive, and when the train moved into the city, Villa's men disgorged to the surprise of the enemy. The story relates that Villa transported the cement kiln up and down Mexico for almost a year using it as a portable fortress and a round-bellied "Trojan horse."**



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***If you operate a slitter of your own,*** you may always enjoy this kind of service. Think what a blessing it is to be able to meet expected and unexpected needs for slit strands on such short notice—how greatly it simplifies production planning—how it eliminates production bottlenecks and minimizes strip inventories.

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Slitting service now may cost you anywhere from $10.00 to $100.00 or more per ton. Even if your needs were only 50 tons per month, at an average of $20.00 per ton for slitting, the cost per year would be $12,000—an amount which alone may be more than sufficient to make a Yoder slitter highly profitable.

The Yoder Slitter Book (sent on request) analyzes and discusses the economics as well as the mechanics of slitter operation. Yoder engineers will be glad to study your needs and submit recommendations as to kind, size, and cost of suitable slitting equipment.

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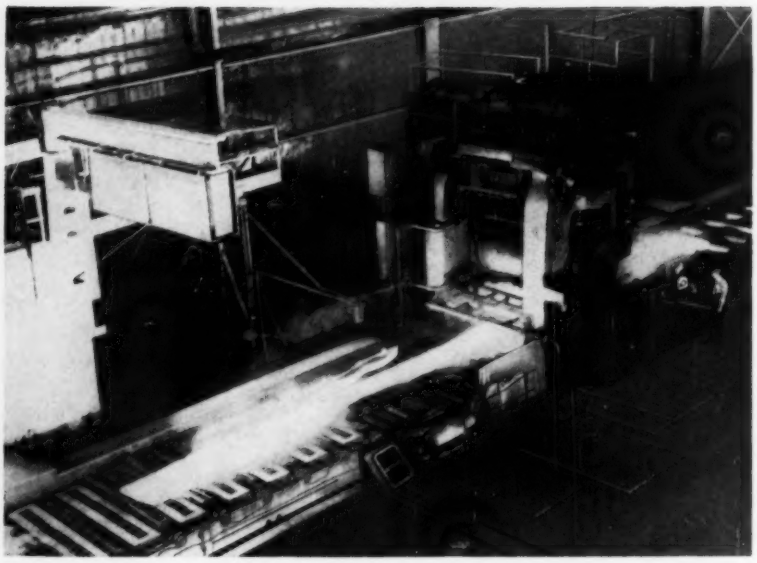


**THIS ROLLING MILL** in U. S. Steel Co's. Irvin Works has the first installation of noncontacting photoelectric detector head.

# Gages Strip Width

## Photoelectric width gage measures hot-strip steel automatically, does away with manual calipering, gives constant control over strip width

A PHOTOELECTRIC GAGE for measuring the width of hot-strip steel has been developed as a partner for the X-ray thickness gage. The latter has been widely used in rolling mills, but the width gage is something new, perfected to eliminate uncomfortable manual calipering of the hot strip.

Calipering by hand has many disadvantages. It gives only spot checks on width, works a hardship on operators who have to get close enough to the hot strip to apply the calipers. Also, the mill has to be stopped while the strip is being measured. Time is lost and the strip cools unnecessarily.

**The new photoelectric** width gage solves these problems. It measures, indicates, and provides a record of strip 10 to 96 in. wide with an accuracy of $\pm\frac{1}{8}$ in. And it does this automatically from a relatively cool, clean observation point 15 ft. above the strip, as the strip flies back and forth on the rolling mill table.

The main functional element of the device is a detector head, a rectangular steel box hung over the mill table. Inside the box are two phototubes, scanning disk, and lenses that look down on the edges of the strip. Each tube-disk-lens unit scans roughly 10 in.—5 in. on and 5 in. off the strip, to allow for sideways motion of the steel being rolled.

The detector head is far enough away from the extreme conditions on the table itself so that it is not affected by the intense heat, fumes and dirt.

**Information picked up** by the detector is relayed to an electronic control cabinet where the signals, one from each phototube, are combined. The result is passed on to a visual mechanical counter in front of the mill operator where data on the strip is automatically and continuously recorded.

A deviation indicator on his control panel shows the operator when the strip is not the proper width. With this information he can make adjustments to keep the rolling hot strip within the required close tolerance.—Electronics, Mar, p114

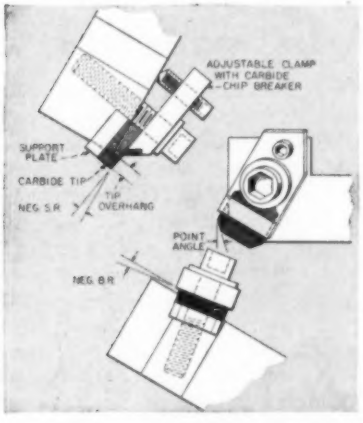
## Two Infrared Analyzers for Processing Control

Automatic control of chemical processing will be aided by two new infrared continuous-process-stream analyzers developed by Perkin-Elmer Corp. American Cyanamid Co. has ordered the first six analyzers for its New Orleans nitrogen products plant.

**Operation** of the analyzers depend on a compound's infrared spectrum. A detector unit picks up differences in the transmitted radiation and converts them into electrical signals. The signals can indicate concentration or control process variables.

Two models—Bichromator and Tri-Non—were made as the company believed that no one analyzer could handle the variety of known and potential chemical-process control problems. The Bichromator, priced at $5,000 to $7,000, works on liquid or gas streams. The Tri-Non, priced at $1,000 less, is limited to gas-stream operation.

**The Bichromator** is an infrared spectrometer, while the Tri-Non is a non-dispersive, positive-filter-type analyzer.—Chem Wk, Mar 7, p61




## Longer Carbide Life

**Ingenious mechanical holder for square carbide tips resulted in 40% greater production and 75% lower tool cost in machining SAE 4320 roller bearings on a vertical turret lathe at TCM Mfg. Co., Harrison, N. Y. Carbide tips and copper-plated, hardened tool-steel shims are held by adjustable capscrew clamp. Carbide overhang is only 3/16 in. Worn tool edges can be changed rapidly; eight edges are available on each tip.—Am Mach, Mar 2, p108**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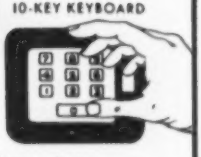

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## Colloidal Silica Makes Better Wool Emulsions

Emulsions applied to wool or blends spun on the modified or American system reduce fly, increase yield, reduce fiber breakage, and control static. The Controlspray, made by Bachmann Uxbridge Worsted Corp., applies the emulsion before the coiler head on the first pin drafter. The emulsion on the inside of the sliver is absorbed evenly before the next process.

**Adding colloidal silica** to these emulsions produces stronger, smoother, fuzz-free yarns. Processing of blends of synthetic fibers is improved because the colloidal silica produces the effect of wool-like serrations on the smooth synthetic fibers. Finer yarns numbers from the same stock or the same yarn numbers from cheaper stock can be spun, and the reduced twists per inch and lower end breakage increase production.

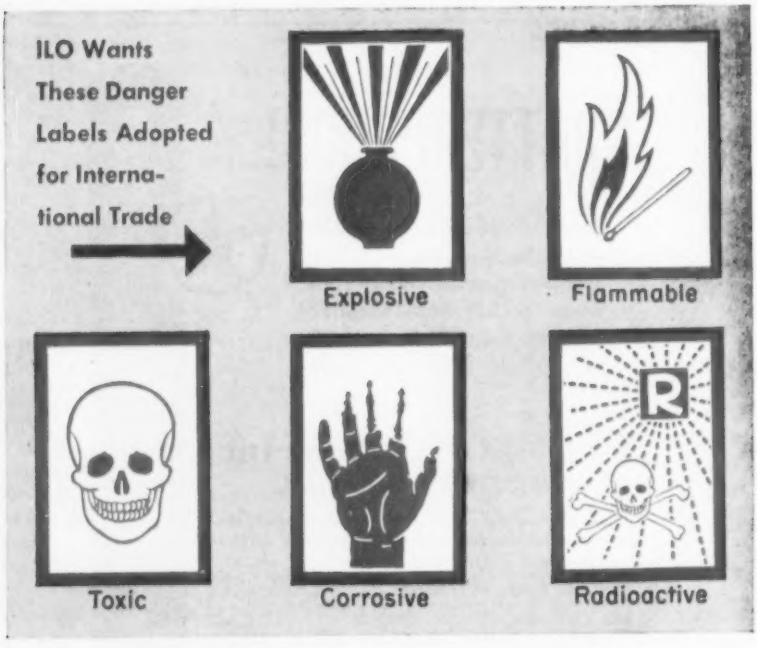
**A typical emulsion** used successfully on the American system with a two-part, dry-combed top follows: one part colloidal silica (Monsanto's Syton), two parts oil, and six parts water. A total of 4¼% emulsion by weight of fiber is added.—Textile World, Feb, p119

## Stops Tramp Wood

Tramp wood, consisting mostly of pieces of cap boards, presented the Black Star Coal Corp. with a problem in its new washing and drying plant. A skimming basket across the discharge end of the wash box solved the problem.

The basket is made from 2-in. square-hole screen plate bent to a curve and positioned so that its front edge is submerged about 3 in. below the surface.

To remove the wood, the jig operator uses a long stick with a sharp nail on the end to spear the pieces. Basket is cleaned once a shift.—Coal Age, Mar, p118




## "Danger" In Pictures

**Chemical Industries Committee of the International Labor Organization adopted these international danger designs at its recent Geneva conference. So even illiterates will understand the signs, ILO chose symbols that are already strongly associated with danger around the world. No words are used. ILO hopes that all governments will adopt and use the labels in international trade and is now readying more to add to the basic five that are shown here.—Business Wk, Jan 17, p66**

## Double Reheat Cycles . . . the Next Step?

Using a double reheat cycle in power plants instead of the one being used at present offers practical possibilities of further raising plant thermal efficiency.

**Instead of piping steam** back to the boiler for reheating, a heat-carrying fluid may be used. A liquid metal such as sodium may circulate between a heater in the boiler gas pass and an exchanger near the turbine where steam emerges for reheating.

With the sodium-steam heat exchanger near the turbine, it is practical to design for a steam-pressure drop of 5% of reheat pressure leaving the turbine.

**The sodium circuit** includes: sodium steam heat exchanger, pumps, piping and valves, surge and storage tanks, purifying equipment, gas-pressurizing apparatus, system heating units, equipment for filling system. An emergency heat exchanger allows the sodium system to dissipate heat during transient periods of start-up and shut-down and when turbine steam supply suddenly ceases. —Power, Feb, p98

## Raises Concrete Slabs

Pressure-placed mud raised 300 sunken concrete floors in Pearl Harbor, Hawaii, Naval Base Housing Areas recently at an average cost of 16¢ per sq. ft. Many floors in the area had settled 1 to 7 in.

**A thick slurry** of top soil mixed with water was prepared in a 6-cu. ft. concrete mixer and a double-action piston pump placed the slurry. Clogging at the discharge nozzle was practically eliminated by increasing the nozzle diameter to that of the hose. Strengthening of subgrade under the slabs being raised was brought about by adding 10% portland cement by volume to the mud slurry.

**In figuring all costs**—materials, labor, and equipment—the expense of raising sunken floor slabs has averaged 16¢ per sq. ft., as compared with 65¢ per sq. ft. for removing the old slab and pouring a new one.—Const Meth & Equip, Feb, p103

**FOUNDER FOX, of Minute Maid Corp., is frozen juice maker. On the boards are ninety competitors in . . .**

# Frozen Juice—A Growth Industry

**Frozen fruit juices have just hit the big time with $240-million sales last year. But success was a long time coming and they almost did not make it**

AFTER THEIR MODEST DEBUT in 1946, quick-frozen concentrated fruit juices went into a quiet sleep in the U. S. For a while it looked as though the product would disappear before it was well enough known to be missed.

Then something began to happen that recently lead *Fortune*, a U. S. prestige magazine, to call it "one of the most successful packaged foods ever made" and as much a part of the American breakfast table as toast and coffee.

Partly responsible for the big swing to frozen juices is a sagacious young man named John M. Fox, founder of Minute Maid Corp., which has been the leader in the industry for the past few years.

Minute Maid, first called Vacuum Foods Corp., got its start during the war when it sold powdered orange juice to the army. After the war the powdered juice business failed and it looked for a while as though Fox's company was doomed along with the rest of the so-called war babies.

• **Saved the Day**—About that time National Research Corp., a professional research firm from Boston, Mass., offered Minute Maid a process it had developed in the early 1940's for dehydrating citrus juice at low temperatures. When reconstituted, the fruit juice tasted like freshly squeezed juice.

National Research Corp. joined forces with Minute Maid, and Fox set up business in Florida near the source of fruit. As an added sideline, he packed juice for Snow Crop Marketeers, another frozen-foods company under the Snow Crop label.

• **Product Launched**—Like the ship that sank at its own launching, Fox and company proceeded to founder badly at first. They had trouble all around. Satisfactory packages were a major problem. The company did not want to use cans because Fox and his researchers reasoned that to suggest storing anything canned in the refrigerator would meet with strong consumer reluctance. Added to this, they were afraid the consumer would confuse the cans with non-frozen juices already being marketed in the only suitable 6-oz. can available.

After many disappointing experiments with bags, boxes, and fiber packs they were forced to resort to the can. Then paper labels kept coming off the cans, spoiling identity of the product. To overcome this they switched to full-color lithographed, electrolytic cans, coated inside with enamel. At

**LEMONADE STAND KITS pleased the youngsters, sold lemonade.**

**PACKAGE DESIGN changed to keep up with the market. Every change was a milestone in Minute Maid's climb to the top.**

last, Fox felt sure the can problem was behind him.

• **More Problems**—With everything set and the contract to can juice for Snow Crop in his pocket Fox was ready. But the consumer was not. During the next year, mid 1946 to mid 1947, the company did little but turn out 17 cans of juice a minute and stack them in their refrigerated warehouses.

The product would not sell.

• **Pressure On**—With failure staring him in the face, Fox plucked up courage. As a last resort, he loaded cartons of frozen orange juice into the back seat of his car and drove to a small community. Going from door to door, he pleaded with housewives to accept free samples. They did, tried the juice, and liked it so much they swamped their grocers with orders. Some good newspaper publicity added to the small spark.

By early 1948 the product began to sell. Fox plowed $300,000 of the first money back into advertising and promotion. By mid 1948, sales were climbing steadily. Fox outdid himself and by August, ironically, he had to ration juice supplies to all Minute Maid dealers.

• **Backing**—Partly responsible for the phenomenal growth of Fox's business was investment money put up by U. S. millionaire horse-fancier John Hay (Jock) Whitney, who was then looking around for a good venture.

Whitney's money allowed Fox to hire a staff of merchandising experts, put demonstrators in stores, and launch a huge sampling campaign to get everyone to try Minute Maid. Hundreds of thousands of coupons good for one can of orange juice were mailed out to people where there were Minute Maid dealers. Almost all were quickly redeemed, showing Fox that, free or not, more people were drinking his juice.

Then Whitney proceeded to give the company another boost. During a game of golf with singer Bing Crosby, Whitney gave the singer a drink of the frozen juice and urged him to buy into Minute Maid. Crosby took Whitney's advice, bought 20,000 shares of stock at 10¢ a share, and started plugging Minute Maid daily on the radio.

When sales for the year 1948 were tallied, Minute Maid found it had made $3-million—six times what it made the year before.

• **Too Successful**—The frozen juice idea had caught on so well by 1949 that Minute Maid's sales had begun to fall off without warning. Looking around for a reason, Fox found that fifty competitors had swarmed in on the new market, and he suddenly found his company hard put to keep up with all the bright new packages vying for consumer attention.

Minute Maid's old blue and yellow can gave way to a new natural color lithograph of actual fruit clustered around the can. To give packages a company similarity, a broad white band was designed to encircle the can. New sans-serif type topped it off with a clean look. Tops and bottoms of the cans were also lithographed. One-two-three rules for mixing the juice and storing were printed on the back. All size cans (4-, 6-, 12-, and 32-oz.) got the same design.

And Minute Maid again started pushing what it called a "grove to gullet" campaign to reacquaint consumers with the virtues of Minute Maid. It worked, and Fox and his company once more held onto their precarious top spot in the industry.

•**Trick Promotion**—Tricky, but good sound promotion has been a Fox forte. His company has done some unusual things to keep its name before the public, but it has been justifiably wary of sensationalism that has a bad habit of turning on its creator.

Minute Maid has entered a prize winning float every year, for the past 3 years, in California's Tournament of Roses parade. Bright flowers and a pretty girl usually adorn the float associating Minute Maid with health and beauty. Last year they offered a clever item to youngsters to help bolster lemonade sales—paraphernalia for a lemonade stand. Parents approved and so did children.

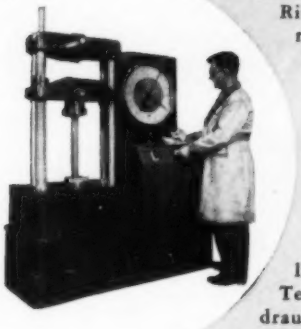
• **Behind The Scenes**—Pulling Minute Maid out of the mire was not a one-man job. Advertising Director James Rayen, Vice President in Charge of Sales Ambrose Stevens, and Sales Manager Howard Boerner had been working hard behind the scenes, selling Minute Maid.

Far from his meager beginning budget, Rayen will spend about $1.8-million this year for television, radio, four-color magazine spreads, space in Sunday newspapers, and bill boards. Another big slice will be taken by point-of-sales advertising (in the form of illuminated merchandising displays above the grocers refrigerated cabinets), participation in various public events, and promotional devices like plastic and glass containers for mixing and storing the juices.

More money will go into keeping the sales force up on competitors and keeping the seven divisional sales offices running. But Minute Maid expects to get it all back with dividends next year when sales may top the $30-million earned in 1952.
—Mod Packaging, Mar, p86

# FROM SURGICAL NAILS TO STEEL RAILS

You can test practically *anything* with a versatile **RIEHLE** Universal Testing Machine. Select the most logical range from Riehle's five standard scale ranges — the equivalent of five testing machines in one! Turn the selector knob and conduct your test — on specimens with relatively low-rupture-points or high-yield-point specimens. Ask your Riehle representative or write our factory for illustrated catalogs on Riehle Universal Testing Machines with hydraulic loading unit or screw power loading units.



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Division of American Machine and Metals, Inc.
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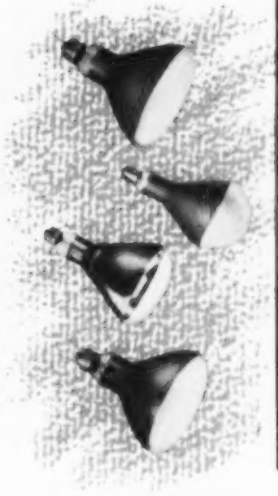
***for better sight, safety, worker performance!***



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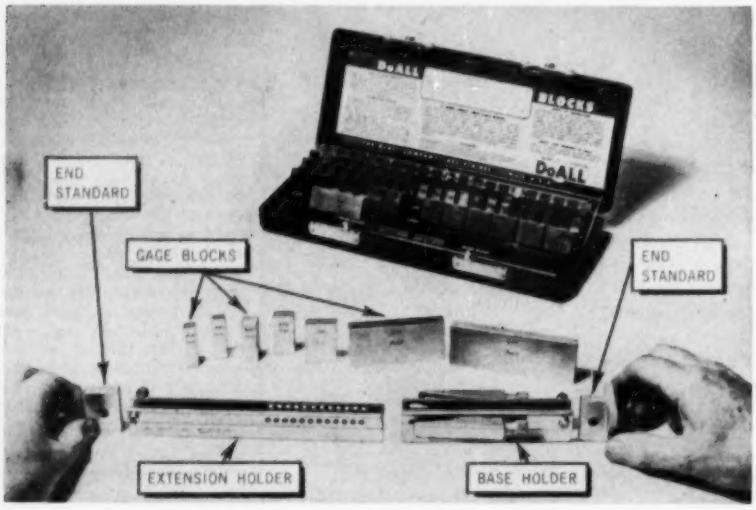
# NEW PRODUCTS




## Micro-Step Gaging System Helps Assemble Blocks Into Precision Tools

New micro-step gaging system permits making gage blocks into usable precision gages and layout instruments. The manufacturer says it:

- Cuts gage and instrument expense because they can be made quickly and easily with this gage-block system.
- Reduces errors in transferring measurements from gage block to other instruments.

The basic features of the system that make it possible to assemble gages are gage-block holders and end standards. The holders accommodate gage-block inserts, in increments of as little as 25-millionths of an inch, from 2 to 72 in. long. There is also a 1-in. to 6-in. caliper holder.

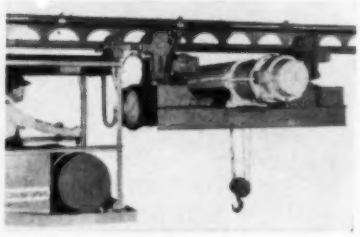
The end standards are functional gage blocks (within gage-block tolerances) in a variety of forms. Each is designed to become a key part of a special type of instrument. There are a foot block, a sapphire ball-point end, knife-edge caliper bars, a scriber, a "pre-calibrated" dial indicator set, and others. The

system makes up the necessary instruments for a wide variety of tool and die work, layout, and inspection.—**The DoALL Co., 254 N. Laurel Avenue, Des Planes, Ill.**—Factory, Mar, p194

### Small Diameter Motor

New motor, designated Type SRP, is designed for use in the woodworking and machine-tool industry. It provides a motorized arbor with minimum diameter and rigid construction for carrying saws, cutter heads, and grinding wheels directly on its shaft.

Motor is built in two diameters. The 600 series covers ratings of 3, 5, and 7.5 hp. continuous at 3,600 rpm. The 800 series covers ratings of 7.5, 10, and 15 hp. continuous at 3,600 rpm. They are available with conventional motor shafts, saw collars, or any shaft modifications as required.—**Louis Allis Co., Ned & Jack St., Milwaukee, Wisc.**—Ind Dist, Mar, p132



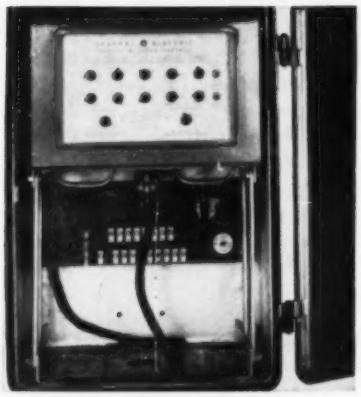
### Crane Has Built-in Scale

Overhead traveling carrier has built-in hydraulic cell scale to permit quick weighing of loads. A lever fastened to upper hoist block operates the cell. Hydraulic tubing transmits the pressure to the scale dial to indicate the load in pounds or kilograms, as desired.

Travel speed of the carrier is 300 ft. per min. Hoist speed is 38 ft. per min. Lift is 36 ft. Load capacity is 3 tons.—**Cleveland Trane & Engrg. Co., Wickliffe, Ohio.**—Chem Eng, Mar, p256

### Faster Service

**At the end of each New Product announcement, you will find the manufacturer's name and address. We are giving addresses so you can get faster service by writing directly to manufacturers for further information on their product. So please write directly to them, tell them what you want to know, and mention that you saw it in the McGraw-Hill Digest. And please remember that you can still ask us for copies of original articles from which digests have been made. We shall be glad to send them free as long as they are available.**



## Traffic Controller

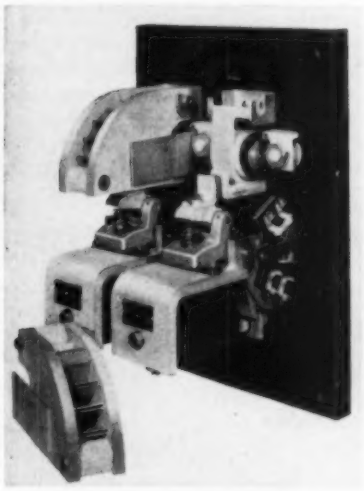
Device detects intersection traffic flow and allocates the right of way to streets according to traffic volume. Type V employs an electronic timing circuit. Type W has an electromechanical mechanism.

Set at road intersections, the device gages traffic flow and runs traffic signals.—**International General Electric Co, 43 Broad St., New York, N. Y.**—Elec World, Mar 9, p148

## Rubber Floor Duct

Over-the-floor wiring problems are solved by Flexiduct, a tough rubber floor duct that is easily and quickly installed with a special cement. Simple installation method eliminates noisy, expensive floor drilling.

Riser fittings are available for running wires directly up under desks or other equipment. "L" and "T" angle fittings simplify installation and protect wires.—**Goodyear Tire & Rubber Co., 1144 East Market St., Akron 16, Ohio.**—Factory, Feb, p204



## Heavy-Duty Contactors Have Long Contact Life

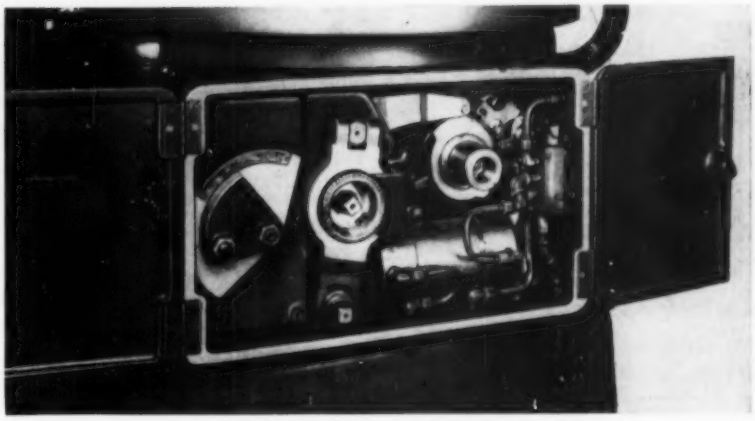
Type 260 single-pole, direct-current contactors are designed to give long contact and arc chute life on rotary-mill controls, mill auxiliaries, cranes, hoists, and related equipment. They can be quickly inspected and easily replaced.

Arc interruption, with initial contact on tips followed by a rolling action of the follow-through, lengthens contact life. Fast arc extinction and quick current interruption result from arc chutes that stretch, cut, and cool the arc. Arc is formed into arc chute by a blowout coil and an arc runner. As the arc strikes the loop end of each chute segment, a magnetic field forces the arc toward center of the chute.

Contactors are available in ratings of 150, 300 and 600 amp. at 600-volt maximum.—**Allis-Chalmers Mfg. Co., Milwaukee, Wisc.**—Prod Eng, Feb, p226

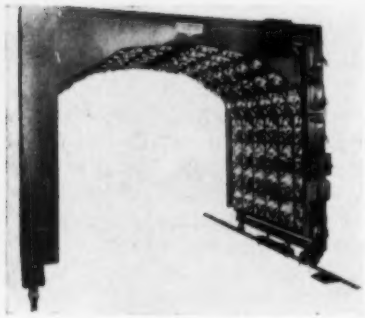
## Industrial Puller Set

Giant industrial puller set is useful for maintaining gears, bearings, pulleys, wheels, pinions, and shafts. Set includes new 50-ton Power Twin hydraulic unit to provide the power, together with suitable pullers and attachments. Three-speed hand pump or an electrically driven pump is also available.—**Owatonna Tool Co., 378 Cedar St., Owatonna, Minn.**—Power, Mar, p172



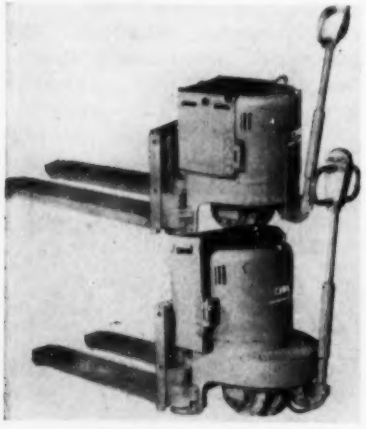
## Automatic Up-Feed for Gear Shavers

**Mechanism available for Red Ring diagonal gear shavers provides automatic up-feed in selected increments and return for unloading. In diagonal shaving, cycle is no longer limited to two cutting strokes. It may include several strokes, each with up-feed. In conventional shaving, work gear is brought into mesh with cutter and lowered for unloading automatically. Various feeding cycles can be accommodated.—National Broach & Machine Co., 5600 St. Jean Ave., Detroit 13, Mich.—Am Mach, Feb 16, p216**



## Infrared Drying Units

Infrared traveling oven bakes enamels in as little as 30 min.; dries lacquer and undercoats in 10 min. or less. Unit is fully automatic and is equipped with timer and speed control mechanism to eliminate hazards of overbaking. Selective switches control individual lamp zones so any area of the vehicle can be baked without using the entire unit. Oven comes in three sizes; baking panels for sectional or touch-up jobs are available in two sizes.—**DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio.**—Fleet Owner, Mar. p96

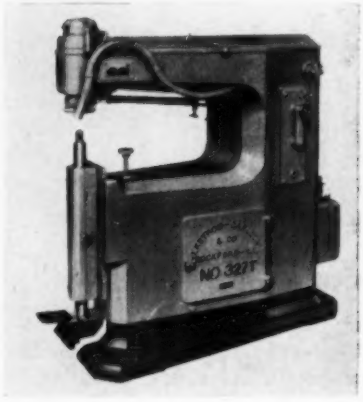


## Battery-Powered Trucks

"Motor-in wheel" drive, cast-steel frame construction, and short overall length are features of 1953 Powrworker hand truck line. Trucks come in either "walk-it" or "ride-it" models, both travel about 2½ mph. loaded, and have 4-in. vertical lift. Capacity up to 6,000 lb. is permissible.—**Clark Equipment Co., Export Division, Battle Creek, Mich.**—Food Eng, Mar, p111

## Plastic Skylights

Modern dome-shaped skylights easily and securely installed in metal base frame by one man are being made of Plexiglas. Domes are made either with a clear finish or an attractive white translucency to meet requirements for privacy, light, and climate. Called Domelites, they are available in square or rectangular sizes, in dimensions from 20 × 20 in. to 64 × 96 in.—**E. Van Noorden Co.,110 Magazine St., Boston, Mass.**—Mod Plastics, Feb, p104




## Trim Router for Aircraft

This trim routing machine has just been developed for cutting non-ferrous aircraft sections.

Model 327T has two spindle speeds, 10,000 and 20,000 rpm., and is driven by motors of 3-, 5-, or 7½-hp. Throat clearance is 27¾-in. Adjustable distance from the spindle face to guide pin holder ranges from 3 to 9¼ in. Maximum stroke of the guide pin holder is 6¼ in.—**Ekstrom, Carlson & Co., 1400 Railroad Ave., Rockford, Ill.**—Aviation Wk, Feb 23, p62

## Solvent Cleans Motors

Solvent called Shaler Generator-Motor cleaner cleans electric motors and generators while still assembled. Motor can be completely submerged in the cleaner, or cleaner may be sprayed into intake side of the motor while it is still in normal operation.—**The Shaler Co., Waupun, Wisc.**—Elec C&M, Feb, p126

# NEW PRODUCT BRIEFS

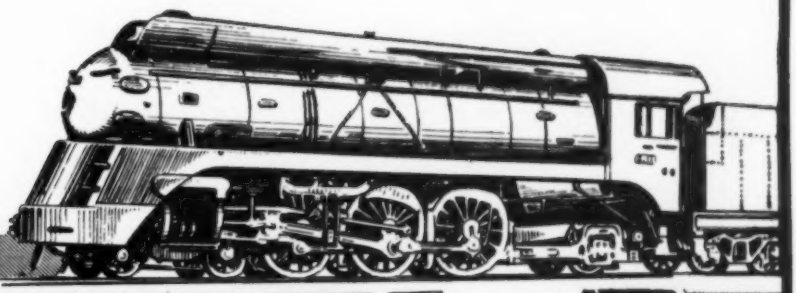
**For that Sweet Smell**—Actamer, or 4,6-dichlorophenol, is offered as an antiseptic for use in germicidal personal products, such as soap. Three soaps are already on the market with Actamer. Its use is claimed to save germicidal soap maker as much as one-third on costs.—**Monsanto Chemical Co., St. Louis 4, Mo.**—Chem Wk, Mar 14, p54

**Air Conditioner**—Model LRAC-80 for home use has rating of 8,800 Btu. an hr., moisture removal capacity of 2½ pints an hr. Unit measures 33¾ in. long by 26½ in. wide by 13⅜ in. high, and projects 9½ in. into room. Conditioner is easily installed in double-hung window from 27 to 48 in. wide.—**Nash-Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.**—Elec Merch, Mar, p157

**For Prestressing Cables**—Cables for prestressed concrete need protection to provide a friction-free covering and prevent adhesion of concrete. New plastic tubing that fits snugly over cable provides protection. Plastic will not rip or tear and is unaffected by moisture. It is split longitudinally, making it simple to apply before concrete is poured.—**Anchor Plastics Co. Inc., Dept. R, 36-36 36th St., Long Island City, N. Y.**—Eng News-Rec, Feb 19, p180

**Wool and Rayon Scouring**—Two new surface-active agents, Triton X-102 and Triton X-138, have been released. Triton X-102 is a detergent with excellent emulsification properties for waxes and oils. Triton X-138 solves problem of efficiently scouring raw wool without damaging finest fibers.—**Rohm & Haas Co., 712 Locust St., Philadelphia, Pa.**—Textile World, Mar, p158

**Tire Service Kit**—Kit speeds truck and bus tire changing on the road. Designed for use in tire service trucks, kit includes gasoline driven air-compressor and air tools for nut running and bead breaking.—**Ingersoll Rand Co., 11 Broadway, New York, N. Y.**—Bus Trans, Mar, p39



# HITACHI'S

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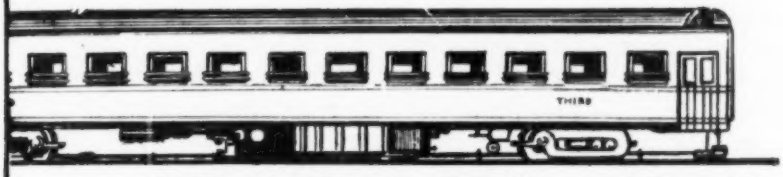

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## Printed Resistor Production Tricks

Four methods of increasing the overall yield of printed resistors (McG-H Digest, Dec. '52, p34) appeared in a recent U. S. National Bureau of Standards Report.

1. Inks should be formulated and the screens or other printing means designed so that the resistor is always low in value when it goes off tolerance. Resistance value can then be raised by abrasive means to bring an entire assembly within tolerances.

2. Where the composition of the resistor and its cure permits, more resistance ink may be added by hand to reduce resistance value.

3. Circuitry may be designed so that, for example, only a ratio between the values of two resistors is important. Here variations in the resistance ink or in processing techniques would make both resistors high or both low but in most cases keep the ratio within tolerance limit.

4. Circuitry may be engineered so that only one or two out of each five or six resistors per stage need be held to close tolerances, thus increasing yield of completed stages or sections.—Electronics, Mar, p276

## Grinds Various Shapes

A grinding machine that generates a three-sided profile claimed to be superior to a spline or keyway as a driving medium is getting the attention of U. S. production engineers in the aeronautical field.

**The grinder,** in addition to the triangular configuration, will generate elliptical, square, eccentric and cylindrical forms.

A key feature reported for the tool — known as the Polygon Grinder—is that it will grind the inside as well as the outside diameter of the three-sided and elliptical configurations. The inside diameter of all the non-circular profiles can also be produced on the machine.

**Polygon machine** was developed by a European tool manufacturer in collaboration with Ernst Krause & Co. Krause made the ancestor of the grinder, the K-Profil grinder. —Aviation Wk, Feb 16, p52

# MANAGEMENT REPORT

**Development of "a new approach** to Britain's economic problem" is urgent if the free world is to achieve the unity necessary for its security. That is what the Committee for Economic Development says. The CED is a non-profit economic research and education organization.

**In spelling out the basis** for the new approach, the group warned that many of the necessary measures will require troublesome policy changes in America as well as in the United Kingdom and the Commonwealth. It recommended:

- Continued negotiation of "selective reductions in U. S. tariffs through an extended Trade Agreements Act, free of weakening legislative amendments.
- The President of the U. S. be granted authority to reduce import duties unilaterally.
- Simplification of customs procedures.
- Progressive removal of agricultural import quotas.
- Liberalization or outright repeal of the U. S. "Buy American Act."

**Industrial psychology helps** at Armco Steel Corp. to (1) screen out misfits from job applicants, (2) assign people to work for which they are best fitted, (3) promote on the basis of ability, (4) select employees for further training, and (5) keep a running inventory of performance by supervisors, managers, and hourly-paid employees.

**Placement tests** have attracted better types of workers, increased job satisfaction, helped reduce accidents, made better managers. In one case, they exposed an Army "colonel" with an engineering school "education" who turned out to have been a private with no college training.—Iron Age, Feb 19, p61

**Something really "different"** can stir up a lot of interest in some project you want to promote good and hard. Here is an idea: Send employees a message about the project. But make them work to read it—by making it a "secret message" in invisible ink!

**It really works.** McBee Co. sent employees a "secret message" in invisible ink, urging them to submit ideas for improvements of production or operating methods. It got plenty of results.—Factory, Mar, p150

**United Nations' latest advice** to the Latin American businessman is push trade with Europe and buy less from the U. S. The U. N. report states that the natural trade relationship between Europe and Latin America is badly off-balance. Western Europeans are covering their food and raw-material needs through U. S. aid and by incurring deficits with North America. Latin Americans have overimported U. S. goods. Primary producers have failed to expand their exports.

**The U. N. study urges** European governments to raise incentives to exporters, improve payment and credit facilities, delivery schedules, and technical services. Latin Americans must boost output of raw materials, reconsider tariff policies, make sure prices are in line. The study also suggests that a payments scheme might be developed to cover the two-way trade.

**Copies of the report,** "A Study of Trade Between Latin America and Europe," in English, French, and Spanish are available from Sales Agents for U. N. publications. Price is $1.25.

**Is your suggestion system paying off** in plenty of good, usable suggestions? If not, consider American Cyanamid Co.'s record—an average of 103.3 suggestions per 100 employees and a total of $74,338 paid out for suggestions adopted. Four highest awards were $1,500, $860, $800, and $600.

**Causes for the system fertility** were many: big promotion program, posters, individual plant promotion men, constant reminders of the financial benefits, and, most of all, more money paid out as the suggestion proves its worth. The winner of the $860 award actually received $1,360 over a 2-year period.—Chem Wk, Mar 14, p21

**Europe can develop steel markets overseas,** now that its steel shortage is over, asserted steel experts from 17 countries at the Economic Council of Europe steel committee meeting in Geneva. All of Western Europe was represented.

**Two problems face Europe:** (1) it has a high capacity to produce flat steel products, but it must maintain and develop consumption if that capacity is to be used fully and (2) it must employ modern production capacity so that resulting low prices will promote consumption.

**Brazil owes Europeans $400-million,** and there is no loan in sight to cover that backlog as there was for the U. S. debts (McG-H Digest, Apr, p15). So all Brazilian imports from Europe will be pared to the bone—and all countries will suffer from the curtailment of markets.

**The competitive picture** remains pretty much the same—with the advantage going to the American exporters. The U. S. Export-Import Bank helped by allowing Brazilians to pay off their past obligations to U. S. exporters.

# PRODUCTION IDEAS

## from Manufacturers' Catalogs

**Tubing**—Catalog describes characteristics and many uses of Bundyweld copper-coated steel tubing in sizes up to ½-in. OD.—Bundy Tubing Co., Detroit 14, Mich.

**Diesels**—Marine Diesel Bulletin EM-B-8 covers diesels with hydraulic system for multi-station control. Stationary Diesel Bulletin ES-B-8 describes stationary units.—Enterprise Engine & Machinery Co., 18th & Florida Sts., San Francisco 10, Calif.

**Consulting Service**—"The Inside Story of Outside Help" details Ebasco's services as engineers, constructors, and business consultants.—Ebasco Services, Inc., Dept. D, 2 Rector St., New York 6, N. Y.

**Safety Products**—MSA Catalog of Safety Equipment illustrates complete line of safety equipment for both plants and personnel in many industries.—Mine Safety Appliances Co., Pittsburgh 8, Pa.

**Machining**—"Presenting A New Manufacturing Machine Tool" tells about the Contour-matic Band Machine that can use 27 different band tools.—The DoAll Co., 254 N. Laurel Ave., Des Plaines, Ill.

**Glass Tubing**—Variety of characteristics, dimensions, and applications can be found in glass tubing. "Glass and You" tells about them.—Corning Glass Works, Export Dept. 4A, 119 West 57th St., New York 19, N. Y.

**Stockroom Control**—"How To Get Profits From Inventories" tells how to use Kardex Control to solve stockroom confusion.—Remington Rand Inc., International Div., Room No. 9426, 315 Fourth Ave., New York 10, N. Y.

**Industrial Scales**—Catalog T-10 describes wide selection of types and capacities of Printweigh Scales that print accurate weights and help you keep records.—Toledo Scale Co., Toledo 1, Ohio.

**Cylindrical Grinding**—Norton 6-in. Type CTU semiautomatic grinder is described in Catalog 1488. Catalog 1787 gives data on the 10-in. model.—Norton Behr-Manning Overseas Inc., Worcester 6, Mass.

**American Market**—"How Big Is the Business Market?" helps you measure the size and importance of the American market for your product.—Business Week, 330 West 42nd St., New York 36, N. Y.

**Processing**—Bulletin 7002 gives a summary of Dorr's complete line of processing equipment for the treatment of finely divided solids suspended in liquids and gases.—The Dorr Co., Stamford, Conn.

**Chemical Pumps**—Bulletin WQ-212 covers construction features, advantages, dimensions, and specifications of Type DB rubber-lined chemical pumps.—Warren Steam Pump Co., Inc., Warren, Mass.

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**Line-type Purifiers**—Line-type Hi-ef purifiers for live steam, exhaust steam, compressed air, vapors, and gases are described in bulletins 501 and 700.—V. D. Anderson Co., 1935 West 96th St., Cleveland 2, Ohio.

**Trucks**—Catalog pictures Model 600 Anniversary Series all-wheel-drive trucks for heavy-duty, off-the-road work, and gives engineering and design features.—Marmon-Herrington Co., Inc., Indianapolis 7, Ind.

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**Chilton Company, Chestnut and 56th St., Philadelphia 39, Pa.**

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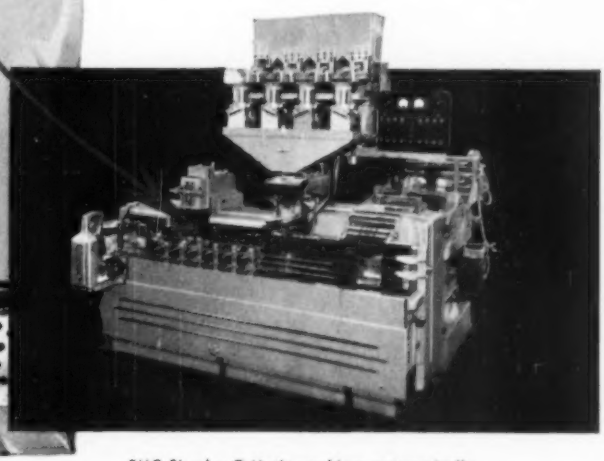

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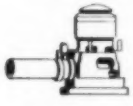

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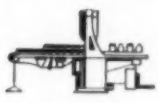

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